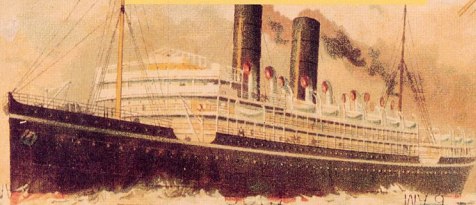


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THE WIA RADIO AMATEUR'S JOURNAL

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### Cover

This month we feature two items:

1. SS "Mantua" — This is a copy of a postcard posted by Charles Edward Brown, father of VK2IK, on board the "Mantua" en route to London from Bombay — please refer to the article on p 13.
2. Gwen Andrews — The Assistant Secretary of the Radiocommunications Branch, in the Department of Transport and Communications. Gwen opened the 1992 Remembrance Day contest, and her excellent speech is on p 20.

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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## Editor's Comment

Bill Rice VK3ABP  
Editor

### Odyssey Continued

Two months ago I was telling you about our recent northern safari to winter warmth. Last month our new Federal President came up with higher priority traffic! There we were, back at Longreach early in June; so let's continue, not so much to write a travelogue as to show the big part played by amateur radio in our 10,000 km trip.

We went from Cloncurry to Mt Isa the long way around, via Normanton, Karumba, Burketown, Lawn Hill, Gregory Downs and back past Cloncurry. The Traveller's Net kept us in touch with home, every day if necessary, and we had two-metre FM between cars. But few amateurs live in these parts, and we met none in person.

At Mt Isa we met Mark VK4KEY, one of the radio technicians at the Flying Doctor base. Later, visiting the Hilary St lookout, Ron made not only his regular QSO with G4JNH, but also worked a W2 and a W4. The first was Tom, the second Dick. But there seemed to be no-one named Harry!

Daughters of amateurs seemed to feature for a few days. We met, by sheer coincidence, the daughter of VK4NFQ at the same Mt Isa lookout. But, by prearranged design a few days later, we met Dee, daughter of VK3AFJ, at Mataranka, and Sue, daughter of VK3AYI, at Pine Creek. Sue even had a chat to her father on 20 metres via Ron's mobile rig.

We might have missed the best of Litchfield National

Park on 23 June, but Ken VK3OG/8 "talked us in" to Wangi Falls. Two days later, at Florence Falls, we met friends from Perth whom we had not seen for 12 years! But that was by coincidence only, and amateur radio played no part, so it was even more amazing!

Around Darwin, the VK8RDA repeater put us in touch with many locals, some visitors (VK3XBG and VK3KRG among them), and led us to a barbecue at the home of Spud VK8ZWM, where we also met VK8TA and VK8ZAB. Bob VK8ZRJ recommended the Berry Springs Wildlife Park. It was excellent; somewhat resembling the Western Plains Zoo at Dubbo, but perhaps even better (certainly warmer!). Leaving Darwin for Kakadu we called in to see Henry VK8HA, who founded the Darwin ARC back in 1966.

Kakadu was marvellous! Less marvellous was the blown caravan tyre we "wrote off" near the South Alligator River crossing (and the leaky spare). While VK3OM stayed at the van, VK3ABP drove to Pine Creek and back (75 km each way) to get a new tyre and tube. Contact was maintained for the whole journey on 40 metres.

Five days later, with the aid of two-metre FM, we met Jim and Marlene (VK3DL, VK3WQ) in Alice Springs, and enjoyed dinner together. They were heading north, the lucky people, while we returned to the cold south! As at 9 August, the Traveller's Net tells me they are at Kununurra. Wish we were there!



This account has been written for one purpose: to show how effectively amateur radio meets the Australian traveller's needs. Probably no other service can provide the flexible use of spectrum space for all purposes as effectively as ours.

Neither the Outback network nor the CBRS has the versatility of amateur radio. This has been achieved over most of the 20th century by the diligence and competence of amateur pioneers, both technically and politically.

Foremost in this continuing is the Wireless Institute of Australia, the world's oldest amateur radio society. It deserves your support!

## President's Comment

Ron Henderson VK1RH  
Federal President

**Restructuring!** Yes the WIA has been restructuring following a series of Resolutions passed unanimously by Divisional representatives at the Federal Convention last May.

**What has happened?** Following those directions from the Convention a batch of Regulations has been adopted to extend the intent of our Articles of Association. The Executive has been effectively abolished; it exists only for ASC company act purposes

with the Federal Councillors the only members. The Council has also modernised its title and widened its responsibilities to become the Board of Directors of the WIA.

**Why the changes?** For several years Council had been unhappy with some aspects of management of the WIA. Council sets policy and for many years met only annually in Federal Convention. Management throughout the year was left

to the Executive, a Melbourne based group of amateurs who were perceived by some to be making policy rather than just carrying it out. Changing times, the need for more timely policy decisions, the shortage of Melbourne based Executive members and changes to company law have all contributed to the recent changes. The new structure will allow the General Manager to go about the daily business of the WIA, working within guidelines set by the Board. On the other hand the Board will continue to meet quarterly. It will debate and argue policy issues, monitor WIA operations and carry out Directors'

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Christopher Davis VK1DO Secretary Jan Burrell VK1BR Treasurer Ken Ray VK1KEN	2m ch 6950 Retrocast Mondays 8pm 70 cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Terry Ryeland VK2UX Secretary Bob Lloyd Jones VK2EYL Treasurer Bob Taylor VK2AOE (Office hours Mon-Fri 11.00-14.00 Wed 1900-2100)	From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only) 1.845 AM; 3.595 AM morning and SSB evenings; 7.146 AM; 10.125 SSB; 24.910 SSB; 28.320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; 1281.750 FM; On relay on behalf of VK2WI on 18.120 SSB; 584.750 ATV Sound, Ch 35, Sydney region. Plus automatic relays to 2m repeaters surrounding Sydney and manually to many country repeaters. News headlines by phone (02) 552 5188; General Divisional information (02) 651 1489.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 403 Victory Boulevard Ashburton VIC 3147 Phone (03) 885 9261	President Jim Linton VK3PC Secretary Barry Wilton VK3XV Treasurer Rob Hailey VK3XLV Office hours Tue & Thur 0830-1530	1.840MHz AM, 3.615 SSB, 7.085 SSB, 53.900 FM(R) Mt Dandenong, (F) 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 FM(R) FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President John Aarsse VK4QA Secretary Ken Ayers VK4KD Treasurer David Travis VK4ATR	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday Repeated on 3.605 & 147.150 MHz, 1930 Monday.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Bob Allen VK5BJA Secretary John Highman VK5PJH Treasurer Bill Wardrop VK5AWM	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Cliff Bastin VK6LZ Secretary John Farnan VK6AFA Treasurer Bruce Hedland-Thomas VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.580, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(F) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.75 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfarne TAS 7015	President Tom Allen VK7AL Secretary Ted Beard VK7EB Treasurer Peter King VK7ZPK	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNV), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$67.00 (G) (S) \$53.65 (X) \$39.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		<b>Membership Grades</b> Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR	<b>Three-year membership available to (F) (G) (X) grades at fee x 3 times</b>

Note: All times are local. All frequencies MHz.

fiduciary duties to maintain the well being of the WIA.

**Who will do the Executive's work now?** For the past two years the Federal Councilors have also been members of Executive. Now, as Board members or Directors, they will continue those duties. The biggest change will be the increased demands upon their time. Unlike Federal Councilors of the seventies and eighties who spent a few hours a month on Federal matters, today's Directors will need to devote several hours a week to keep up to date and on top of issues. Naturally this will preclude them holding other offices in their Divisions, and they will need to change more frequently to avoid burnout.

**What about the General Manager's workload?** The WIA, in common with any service industry, is judged on its responsiveness to inquiries. With a full time General Manager and paid office staff the Federal Office is well able to meet those demands. Indeed our present good image is due very much to their efforts. This service extends well beyond the membership, in fact with our Divisional structure most members inquiries, ex-

cept for subscriptions and AR, are answered by the Divisions. Rather it is in the fields of representation, internationally and nationally, that is ITU, IARU, sister societies, DoTC, Standards Australia and the like that the effort is expended.

**What's in it for us members?** The Board has to ensure the WIA continues to provide its current good services, contain its costs in these difficult times and represent members views to the authorities. By restructuring, resources are being better matched to the tasks at hand.

Volunteer Directors are responsible for policy creation, monitoring of operations and longer term issues. Volunteer coordinators also assist with many amateur radio technical and operating matters. All of these activities match the availability and time volunteers can give. On the other hand the widely varied routine administrative functions, many of which must be carried out to demanding deadlines, are in the hands of our trained and competent staff. The WIA's Board and its devoted staff are all committed to providing you, the member, the best service we can. ar

## WIA News

*From the WIA Federal Office*

### Low Power Devices

**L**ow Power Devices, or LPDs for short, are low power radiating devices which operate under DoTC approval through brochure RIB60 "Low Powered Devices". The DoTC conducted a comprehensive review into the use of low power devices and issued a report SP5/92 "Foundations for Future Management of Low Power Devices". The WIA provided input to that DoTC review and, in particular, commented on the proposed field strengths for devices in the 3.5 MHz band. Our argument was supported by a CCIR study report of natural and man made noise levels in urban areas, levels the WIA thought appropriate for band sharing with LPDs. The WIA did not comment on the field strengths proposed for non amateur frequency bands, believing this was not within our charter.

When DoTC report SP5/92 and RIB 60 were received the WIA observed a large number of band segments were proposed, several of which were secondary allocations to amateurs. The WIA expressed concern as to the field strengths involved and the likelihood of LPDs drifting in frequency into amateur primary allocation bands.

A meeting was held between the WIA and the appropriate area of DoTC at which our four principal concerns were discussed. Those concerns and the outcome of the meeting were as follows:

**Frequency stability of LPDs.** DoTC assured the WIA the frequency stability of LPDs was mandated by RIB60 and instances of them intruding into primary amateur bands would be investigated.

**LPD emission levels.** The DoTC assured the WIA that LPD emission levels were also included in the mandatory requirements of RIB60 and reported instances of excessive power would be investigated.

**Mandatory standards.** Whilst the WIA pressed for LPD standards to be mandatory, DoTC felt the existing requirements for frequency stability and emission levels were adequate, all others in the RIB being advisory.

**Difficulty in removing intruders.** The DoTC stated regulatory action would be taken to identify and remove intruders, but admitted their location would be a difficult task.

The WIA concerns about interference to weak signal reception were not well received for the Industrial, Scientific and Medical bands used by amateurs, because the definition of ISM bands states users must accept some degree of interference. The WIA was able to make the point that the amateur 24.00 - 24.05 GHz band had been included in the LPD allocation without consultation, DoTC responding that they had been guided by international allocations. Consequently the WIA has taken this up with the IARU to see if they were aware of the intrusion.

The DoTC view on sharing was that it was a means of

**Remember to  
leave a three  
second break  
between overs  
when using a  
repeater**

satisfying the increasing demand for spectrum. LPD frequency bands were harmonised throughout the world, using ISM bands to a considerable extent and LPDs radiated only briefly permitting sharing with many differing users. The WIA is well aware of this trend. Indeed, the preparation for WARC-92 involved a sharing review to determine which services could co-exist with minimum interference to each other.

During discussions it was difficult to demonstrate "real hurt" because the WIA lacked examples of amateurs suffering harmful interference. We understand LPDs are already in service. However, we are not aware of any reports of problems to the amateur service. Nevertheless we brought to DoTC's attention the 13.56 MHz RF lamp bulb, a current spread spectrum 70 cm

difficulty in Sydney and imprisonment in the home using LPDs as typical concerns. Overall the WIA argument was diminished in strength through the absence of documented reports of specific harmful interference situations.

The outcome was not particularly satisfying, for the WIA was unable to backup arguments with definitive examples of harmful interference. However, two positive points arose. First was DoTC's assurance that LPDs were required to conform to mandatory requirements as to power levels and frequency stability. The second was an acknowledgment that DoTC Regulatory staff would have to respond to reports of out-of-specification LPDs causing harmful interference.

The WIA has taken up with the IARU the matter of the 24 GHz band allocation.

International amateur representation might lead to excluding the amateur segment 24.00 - 24.05 GHz from the LPD band segment at some future date.

Unfortunately a WIA paper on RF tag devices or LPDs, presented to the IARU Region III conference in Bandung last October, evoked little interest.

## New Production Editor

The WIA is pleased to announce the appointment of Bruce Bathols, VK3UV, as the new Production Editor of *Amateur Radio* magazine.

This September issue of amateur radio magazine is the first to be produced by Bruce. Bruce has sat in the Editor's chair previously, firstly as Assistant Editor then, from 1977 to 1983, as Editor.

A total of seven applica-

tions was received for the widely advertised position. The WIA is confident that the choice made, which was difficult considering the calibre of the applicants, is the best possible for both the WIA and the magazine.

## Extraordinary Convention

The weekend of 18-19th July 1992 was the occasion for the first weekend meeting since the start of the restructuring of the WIA Federal management procedures. Since the Executive, as such, has been replaced by the Federal Council, comprising the Federal Councillors of each Division, the quarterly meetings now become Extraordinary Conventions rather than Executive meetings.

This change of management procedures, of course, requires changes to the Articles of Association, a time

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Amateur Radio Action — 9 June 1992

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consuming process as the package has to be reviewed by the Australian Securities Commission, and is not expected to be completed until at least the 1993 Annual Federal Convention. Further work will be carried out throughout the rest of the year. A considerable amount of the time of this meeting was spent in further refining these management procedures, and a full report of the changes and their implications will be released shortly.

In addition, this meeting further defined policy on areas such as amateur examinations, membership and recruiting, financing of international representation and a preliminary consideration of the 1993 Federal budget.

Much of the Saturday morning was spent on routine consideration of reports on financial performance, membership and the magazine. In particular, the changes in the procedures for the production of *Amateur Radio* magazine were noted, and the appointment of Bruce Bathols VK3UV, as Production Editor was announced.

On international matters the WIA was pleased to record its vote in favour of the admission of both Slovenia and Croatia to the IARU. It was also noted that the commitment to WARC and CCIR meetings is on-going, and Preparatory Group meetings are already being held.

The draft de-regulation of licence conditions paper, as published in *Amateur Radio* magazine, attracted just on 50 responses to the Federal Office. These were discussed at length, and guidelines established for future negotiations with DoT before the finalisation of the new regulations.

The question of membership recruitment and retention

generated considerable discussion. It has long been a concern that, although the amateur population in Australia is slowly but steadily rising, WIA membership is drifting downwards. Because it is much more cost effective to retain existing members rather than to recruit new members, and because most of the membership losses are among those who have been members for only one or two years, it was agreed that the main thrust of any campaigns should be towards retaining existing members. This does not, of course, mean that no effort will be made to encourage new members. A number of possible approaches to be taken at either Divisional or Federal level were discussed, and a broad policy established.

Because of the pressure of time a number of items had to be deferred to the next meeting. These included a proposal to investigate the listing of WIA Divisions and radio clubs in the Yellow Pages, possible alternative arrangements for future production of *Amateur Radio* magazine, the establishment of policy on the use of special call signs, and a revision of the policy on trading by the Federal Office and the Divisions.

In all it was an intense, exhausting weekend, which made considerable advance towards many matters involved in the restructuring of the Federal structure of the WIA.

### No More Press-to-Talk Button?

The Japan Amateur Radio League (JARL) News for June 1992 announces newly developed technology which has succeeded in putting into use "a single-frequency, 2-way simultaneous communication radio equipment",

meaning that there is no longer a need to switch from receive to transmit, ie, the device functions similarly to a telephone. The operation is carried out by dividing the operator's voice signals into 0.2 second segments and compressing them into half the time before transmission, leaving the other half of the time for receiving. Technology keeps on advancing!

### Comment from "Choice" Magazine

A number of members contacted the Federal Office when the July issue of "Choice" was released. In an article explaining and investigating mobile and cellular phones, the statement was made "...cellular phones use radio frequencies for their operation and as such are susceptible to eavesdropping from "ham" radio operators. Andrew Peacock and Jeff Kennett will swear to that..."

The WIA has written to the magazine pointing out that listening devices are not confined to "hams", and that the WIA takes exception to the use of the term in this instance.

As I understand it, "Choice" has a considerably longer lead time than *Amateur Radio* magazine. Therefore it may be some time before we know if our letter provokes any apology.

### Examination Trivia

No statistics have been carried out, and it may be only a temporary effect, but it was interesting to note during the months of June and July this year that both the number and the proportion of female amateur examination applicants was higher than previously.

Members may also be interested to know that in the six months to 30th June,

almost 200 examination events were held, for a total of over 900 candidates. The overall pass rate, however, is still at just over 50%, ranging from 34% for AOCP theory to 81% for NAACP CW sending. It would be pleasing to see an improvement in some of these figures. Presumably some applicants are not well prepared for examinations.

### New Members of the ITU

With the recent addition of Armenia and Uzbekistan, nine republics of the former USSR are now members of the ITU. Those which have joined previously are Azerbaijan, Belarus, Estonia, Latvia, Lithuania, Russia and Ukraine.

### RF ID Systems

Some information recently provided by Roger Harrison, VK2ZTB on the subject of Radio Frequency Identification systems may help to ease members' worries over these low power devices (LPDs). The article supplied is written from the point of view of the enthusiastic user, not the radio amateur, and lists the advantages such as immunity to dust, cold and chemicals, and the ability to be read through non-metallic materials.

However, it also gives a good description of some of the devices and their functions. The transponders can be either battery powered or passive, in which case they are activated only by the RF signal emitted from the reader. Frequencies used may be HF, but better results are being achieved using Low Frequencies, as in the TIRIS (Texas Instrument Registration and Identification) unit, a passive device on 134.2

kHz which uses pulse code modulation. The reading range is usually one metre, but may be extended to two metres depending on the antenna system.

Uses quoted include production lines, warehouses, security controls, monitoring, truck fleet identification, automatic refuelling records and, in Germany, garbage bin identification and weighing so that each household can be billed according to the amount of waste removed.

Nothing in the article suggests any problems with interference to amateur or other frequencies or any increase in radio noise in the environment.

### **Amateur Radio Magazine 20 Year Index**

This index, which now extends to 24 years, includes items going back to 1968. It has been advertised in recent issues of *Amateur Radio* magazine as available from the Federal Office either on disk or in hard copy.

Unfortunately, as the hard copy version is now up to 43 pages, the cost of the hard copy has had to be increased to \$10.00, including postage. The disks which can be obtained in either ASCII or .DBF format, are still available at \$10.00 each.

### **ARRL Name Unchanged**

The ARRL letter of 27th July notes that: *The ARRL Board of Directors will not entertain changing the name of the organisation until next year at the earliest...*

Further consideration was postponed "so that the full rationale for the proposal can be shared with the membership".

The letter also noted that a sum of \$37,000 has been approved to conduct a survey to address membership recruitment issues.

### **SEANET '92 Update**

The SEANET '92 organising committee has advised that registration forms will be distributed in the near future. Information is now available, updated weekly, on packet from VK8SEA @ VK8DA. Royal Brunei Airlines has been appointed the official carriers.

### **ITU Administrative Council News**

The recent 47th Session of the ITU Administrative Council examined an interim report of the Group of Experts charged with considering ways of improving the use of the Radio Frequency spectrum and how to simplify the Radio Regulations. A drafting group has been set up to develop the complete texts of the simplified Radio Regulations.

It also agreed to convene the first World Radiocommunication Conference late in 1993 in preparation for the further cycle of radio conferences planned to be held every two years. These confer-

ences, which will replace the periodic WARC's, will review and revise the Radio Regulations as necessary.

Provision has also been made to merge the present non-standardisation activities of the International Radio Consultative Committee (CCIR) and those currently performed by the International Frequency Registration Board (IFRB).

### **Very Low Frequency Experiments**

The subject of allocation of a VLF band to the Amateur Service was discussed at length at the quarterly board weekend meeting in July. A note from the NSW Division's Sunday broadcast may interest VLF enthusiasts.

*"Dale Woodside VK2TZ, who runs the St George Amateur Radio Society net on Thursday nights, advises that he has recently obtained permission to conduct low frequency band experiments, using the callsign AX2NAV."*

*Following in the footsteps of VK3ACA, who recently conducted CW tests on 196 kHz as AX3T35, Dale tells us he has obtained permission to use AM and SSB modes, as well as CW, at power levels up to limits*

*specified for normal amateur band operations.*

*Dale says he will be researching the design and implementation of 'practical, electrically small antennas' and will be using frequencies allocated also in New Zealand for experimental purposes: namely 175 kHz and 185 kHz, using the 9K00A3E mode. He is obviously hopeful of some trans-Tasman DX contacts with other LF experimenters in New Zealand.*

*If you are interested in discussing LF band research with Dale, you can contact him on Thursday evenings at 8.30 pm (EAST) on the St George net (Sydney) on 146.8 MHz, or by packet where his address is VK2TZ @ VK2XSB.NSW.AUS.OC."*

### **Examination Costing Re-assessed**

*WIA Exam Service* has now been successfully operating for ten months, and has so far performed very satisfactorily. In the first six months of 1992, starting from the time that the WIA assumed total responsibility, 197 examination events have been held for a total of 910 candidates, who between them attempted 1504 subjects.

## **ATN ANTENNAS & Accessories**

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Fax: (054) 92 2666.

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- Hard-drawn copper antenna wire and insulators.
- Aust/NZ distributor for Create antennas/rotators & Phyllisstran (Kevlar) non-conducting guying materials.
- High gain VHF & UHF amateur, scanning & TV antennas.
- Butt section triangular aluminium towers for fixed or tilt-over applications (refer March/April 1987 AR).
- Selections of power chips and TX tubes at friendly prices.
- VSWR/PWR meters by Diamond to 1300MHz 5 models. All in stock.

As present Accredited Examiners will be aware, when *WIA Exam Service* was set up, one of the more difficult tasks was establishing equitable costs. Experience has shown that cost estimates on all aspects of providing the exam service were accurate, except in regard to the number of individual examination subjects needed for each Exam Event. Based on extensive surveying of examinations conducted under the previous systems, it was expected that the average number of individual examination subjects per Exam Event would be at least 20 (ie. 10 candidates sitting for 2 subjects each; or 5 candidates sitting for 4 subjects each).

However, *WIA Exam Service* has been too successful in simplifying the running of exams. Exams are now taking place much more frequently than previously, and for correspondingly smaller numbers of candidates. This is great for amateur radio in Australia, but the down side is that the average number of individual examination subjects per Exam Event has settled at less than 8, well under half the number originally expected. This seriously changes the costing of exams.

Obviously, *WIA Exam Service* must be self supporting and not dependent on the use of WIA members' funds. The directors of the WIA looked at many options, including the limiting of each exam event to a minimum number of examination subjects, or the application of an event fee on top of the cost of the examination material, before deciding that an increase in the cost of the examination material was the best and fairest method.

Therefore it has been regretfully decided that an increase in fees must be ap-

plied for all examination material supplied by *WIA Exam Service* after 30th September 1992. It is hoped that no further increase will be necessary for a considerable period.

Of course, *WIA Exam Service* sets the rates only for the supply of the examination materials. The Examiners may add whatever administrative fee is necessary to allow them to cover the perceived local costs involved. For information about the rates to apply after 30th September 1992, candidates are advised to contact their local Examiners. Examiner lists are obtainable from WIA Divisional Offices, DoTC Offices, and the Federal Office of the WIA.

### Club Newsletters

A number of clubs and groups send copies of their regular newsletters to the Federal Office and to the Editor of *Amateur Radio* magazine.

While this is appreciated as a way of keeping information up to date, these groups are advised that two separate copies are not really necessary. The Office does talk to the Editor, and he has full access to the files, so save your postage (and our filing space) by sending only one copy.

### Responses to Draft Regulations

By the closing date for submissions on this matter, the Federal Office had received just on 50 submissions. It is understood that DoTC received 182. While many respondents used the opportunity to push a personal barrow, the general

thrust of most suggestions encompassed higher power limits, increased band space for combined licensees, some UHF for Novices and data modes for Novices.

Negotiations with DoTC are not yet completed. WIANEWS will keep you informed of progress.

### Wanted

*Amateur Radio* magazine takes itself seriously, but some members feel that the magazine is a bit too serious. Are there any cartoonists or artists out there who can offer a more light-hearted approach? Contributions are always welcome, and will be rewarded at the same rates as those from the other contributors and columnists. That is acknowledgment, byline and satisfaction!

### JOTA 1992

The 35th Jamboree on the Air will be held on the weekend of 17-18th October 1992. Members may wish to start making preparations. It is expected that there will be a range of special activities for this 35th event, the theme for which will be "let's talk".

Your local Scout Group should have received a circular in August with operating frequencies, report form and participation cards.

### Standards for EMI

The August issue of "The Australian Standard", the journal of Standards Australia, announces the publication of a series of standards dealing with electromagnetic interference. Most of them are updates to bring them into alignment with international Standards, and all are being published in association with the Standards New

Zealand. There are nine items in the series, as follows:

- Household electrical appliances, portable tools and similar: (suppression standards for items which may cause interference)
- Measuring apparatus and measuring methods: (performance requirements for RFI measuring apparatus)
- Television FM and sound receiving equipment: (limits and methods of measurement of RFI characteristics of receivers)
- Industrial Scientific and Medical RF equipment: (includes how the RF energy generated is used, also equipment design)
- Spark ignition systems for motor vehicles and similar: (EM radiation interference to radio reception from internal combustion or electrical engines)
- Information technology equipment: (measurement of spurious signals over the range 0.15 to 1000 MHz)
- Luminaires: (conduction and radiation of interference from fluorescent lamps and luminaires)
- Microwave ovens: (measurement of radiation from both small and large ovens, for frequencies above 1 GHz)
- Immunity of television: (measurement methods and limits: frequencies 150 kHz to 1 GHz, and various types of interfering signals).

It is also noted that Australia is playing an active role in the CISPR forum, having sent five representatives to Berlin last year, and is sending three to the meeting in Warsaw in September. When the series of International Electromagnetic Compatibility standards is published, it will be adopted by Australia.

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## Public Comment Invited by the DoTC

*The Department of Transport and Communications, Radiocommunications Operations Branch, has recently adopted a policy, applauded by the WIA, of publishing for public comment any proposed substantive changes to the regulations and conditions affecting the amateur service.*

*Details of the following proposal were received just as this issue of Amateur Radio magazine was off to the printers.*

*Members are urged to make any responses direct to the DoTC at the address given, no later than 21st September 1992, and are also requested to send a copy of their submission to the WIA Federal Office, PO Box 300, Caulfield South, VIC, 3162.*

*The proposal was discussed by the Federal Council at the last meeting. The VK4 Division of the WIA submitted a paper to DoTC for consideration. This is the next stage.*

*Bill Roper VK3ARZ*

### **Department of Transport and Communications Proposal for Use of Amateur Television in Education**

A joint proposal has been received from the Queensland Department of Education and the Wireless Institute of Australia, Queensland Division for approval in principle for a trial to be conducted employing licensed amateur radio stations (and operators) to transmit television signals of classroom lessons between schools.

The intention is to extend the availability of specialist teaching skills in small communities by means of amateur radio. In this way a teacher with teaching ability in French or Chinese, for example, can maximise the number of classroom hours available to them by remaining at the one location and communicating with students at a number of schools or institutions by means of amateur television transmissions.

The Education Department is undertaking to train its staff in amateur radio and to supply transmitting equipment including repeater stations where necessary to facilitate the trial. This equipment may be made available for normal use by amateur stations after school hours.

The Queensland Division of the WIA has advised that it can see advantages in: the increased use of amateur frequencies for the benefit of the general community at a time when the majority of amateurs themselves are unable to use them; and an increased interest in amateur radio resulting from wider exposure to the community.

This concept of using amateur radio to assist school education programs operates very successfully in Canada which has similar problems to Australia in respect to distance and the availability of scarce resources.

The proposal is supported by the national body of the WIA.

Before making any final decision on the proposal the Department is seeking comment from the broader amateur community. All comments should be forwarded within twenty one days of the date of this publication to:

Assistant Secretary,  
Radiocommunications Operations Branch  
Radiocommunications Division  
Department of Transport and Communications  
GPO Box 594  
Canberra ACT 2601  
(FAX 06-274 8655)

Yours sincerely  
**Gwen Andrews**  
Assistant Secretary  
Radiocommunications Operations Branch  
Radiocommunications Division.

## An Interference Cancelling System for your Receiver or Transceiver

**Lloyd Butler VK5BR**  
18 Ottawa Ave  
Panorama 5041

**T**HE USE OF interference signal cancellation appears to have been around for some time. The idea is to use an auxiliary antenna (almost any random length of wire) in addition to the main receiving antenna.

As the two antennas are physically

spaced from each other and also unlikely to have similar field patterns, the amplitude and phase of signals induced into the two antennas by an interfering signal can be expected to be different. This particularly applies to a localised interference source which is large-

ly coupled into the antenna by induction. This induction field follows a different law of signal attenuation versus distance from that of the radiation field by which the distant desired signal is being received.

The two antenna outputs are combined after modifying their relative signal levels and phase such that the interference signal from one antenna is equal but opposite in phase from that from the other antenna. The interference signal is cancelled but, as the two desired signals have a different amplitude and phase relationship, a resultant desired signal component is retained. Of course, for all this to work, the interference waveform must be continuous and reasonably stable in its shape and amplitude. From my own experience, the system works extremely well for power line noise and frequency dependent noise bars generated by TV line time base and computers.

To achieve this form of interference cancellation, some device is required which can adjust the amplitude and phase of one or both of the antenna



signals. Relative phase between the two signals must be adjustable over a 360 degree range to cope with different signal conditions.

In 1976, Drew Diamond VK3XU submitted articles (references 1 & 2) on a passive method of mixing and adjusting the two antenna signals. To provide 180 degrees phase shift, Drew provided a reversing switch in the main antenna circuit. A matching network consisting of a tapped inductor and two variable capacitors was connected to the auxiliary antenna. Further adjustment of phase was achieved by detuning the matching network. Amplitude was adjusted by a potentiometer in each antenna circuit.

Phil Williams VK5NN has drawn our attention to a unit called a QRM Eliminator, distributed by a British company, SEM. Phil owns one of these units and has reported very favourably on its ability to balance out unwanted signal. The SEM unit is an active device powered from 12 VDC and is provided with phase and amplitude adjustment controls. Their Mark 1 unit is switchable between amateur HF bands, but a later Mark 2 unit appears to be unswitched with continuous coverage between 100 kHz and 60 MHz. I am not clear on how continuous full phase control can be achieved over this wide band without switching.

With all this background, I decided that I should attempt a circuit design of my own. The idea of a passive unit, as Drew had used, seemed attractive in that there were no transistors to encourage cross-modulation and, of course, no power required apart from relay control. On the other hand, I questioned whether detuning an antenna matching network was adequate to give the complete range of phase shift which might be required. I eventually decided to design the circuit around RC phase shift networks connected via suitable transistor interface stages. How this was done is described in the following paragraphs.

### Phase Control

Phase control is initiated in two RC networks A and B (figure 1). In each case, the reactance  $X_c$  is made equal to resistance  $R$  and hence the current  $I$  leads the source voltage  $E_i$  by 45 degrees. In network A, the output voltage  $E_r$ , developed across  $R$ , is therefore 45 degrees leading  $E_i$ . However,

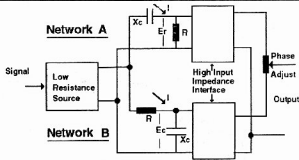


Figure 1 Adjustable Phase Shift Over 90 degrees

the voltage across a capacitor lags the current by 90 degrees and hence the output voltage  $E_c$ , developed across C in network B, is 45 degrees lagging on  $E_i$ .

As one network output leads by 45 degrees, and the other lags by 45 degrees, there is 90 degrees of phase difference between the two circuits. Phase relationships are shown in the vector diagram figure 2. The two outputs are interfaced by high input impedance amplifiers to prevent loading of the networks and then mixed together. By varying the ratio in which the two signals are mixed with the phase adjustment potentiometer, phase adjustment over a 90 degree range is achieved. The output level in the centre position of the potentiometer is a little lower than that at its ends, but as there is amplitude adjustment as part of the system, this is of little consequence.

Complete 360 degrees of phase control is provided by a four position switch, each position giving one of the four adjustable 90 degree quadrants. To select the three other quadrants either one, or the other or both of the inputs to networks A and B are reversed.

A band switch is provided so that the reactance of network capacitance is set equal to network resistance at 1.8, 3.5, 7, 14 and 28 MHz. In practice, the reactance is not critical and phase can be

set at intermediate frequencies, making adjustment possible over the continuous HF range.

### Circuit Description

The complete system of interference cancellation is illustrated by the block diagram (figure 3). For the circuit description which follows, refer to figure 4. The auxiliary antenna signal is amplified by FET stage V1 to provide a margin of signal level in adjusting the signal amplitude. Phase splitter stage V2 provides two outputs equal in level but opposite in phase as required for quadrant selection. Emitter follower stages V3 and V4 present a low impedance output suitable to drive the networks. Switch S3 selects the required quadrant as previously discussed. Network A is made up of resistance R10 and switched capacitor circuit Xx. Network B is made up of switched capacitor circuit Xy and R12. The outputs of the two networks are interfaced by emitter follower stages V5 and V6 which feed the phase adjustment potentiometer RV1. A further interface stage V7 connects via amplitude control RV2 into the output line driver stage V8.

### Signal Combining

The antenna signal combining circuit requires some explanation. In the first instance, my circuit combined the processed output from the auxiliary antenna with that from the main antenna without isolation. With this arrangement, part of the processed signal was fed back to the main antenna as well as the receiver. Under some conditions of adjustment, I experienced instability due to feedback of processed output via the main antenna back into the auxiliary antenna.

Cross-modulation of the main antenna signal was also noticed when

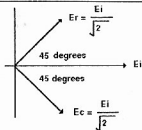
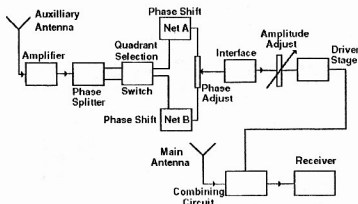


Figure 2 Vector Diagram 45 Degree Phase Shift Circuits



**Figure 3 Interference Cancelling System Block Diagram**

partly loaded by the V8 output circuit. To get rid of these problems, the circuit arranged around T2 was installed to isolate V8 output from the main antenna whilst still permitting each to feed the receiver. Readers with a Telecom background might recognise T2 circuit as similar to the Hybrid Coil circuit used to achieve two-way amplification on telephone trunk lines.

For the isolation to work, the receiver is assumed to present a 50 ohm resistive load. This is increased to near 100 ohms by transformer T3. The reflected 100 ohms is balanced against resistance R20 which is also 100 ohms. The main antenna is loaded by these two 100 ohm circuits in parallel, hence 50 ohms load is presented to the main antenna. As the lower two windings of T2 are in antiphase, the inductance of T2 in series with the main antenna is cancelled out. Furthermore, no signal from the main antenna can be induced into the upper winding of T2 which is connected to the auxiliary output.

As far as the auxiliary circuit is concerned, its signal is induced into the lower two windings of T2 which are connected across the two 100 ohm circuits in series, that is, 200 ohms. As there is a 2:1 turns ratio or a 4:1 impedance ratio, 50 ohms is reflected back to the auxiliary output circuit. Whilst half the auxiliary output power is fed to the receiver input, the auxiliary output voltage to earth is virtually zero at T2 centre tap. As this is the main antenna connection, auxiliary output signal is prevented from reaching the main antenna. Of course, the usual 50 ohm input to the receiver is a nominal value and the degree of iso-

lation between the two circuits depends on how near the receiver input circuit is to a resistance of that value.

### The Front End

The auxiliary antenna circuitry was first tried out in a broad band mode with the antenna directly connected to V1 input. Using this connection, the system was overpowered by cross-modulating local broadcast station carriers. A high pass filter set to cut off around 1.8 MHz fixed the problem and the system then worked quite well. However, there was still evidence of "birdies" at certain spots on the band and I found that a selective circuit was needed at V1 input to eliminate these. Had there been any strong local amateur stations on the air, I am sure that I would have needed the selective circuit to also eliminate further cross-modulation.

I made use of a slug tuned short-wave aerial coil which had been used on an old valve broadcast receiver, and a 17 to 549 picofarad variable capacitor. With the slug carefully set, a tuning range to cover all bands between 3.5 and 21 MHz was achieved. To tune 1.8 MHz, an additional 1.8 nanofarads fixed capacitor was switched in. I did not allow for 28 MHz, deciding to add this later if needed. Of course the whole range of 1.8 to 28 MHz could easily be covered with two switched coils and the variable capacitor. Another idea would be to use fixed tuned circuits for each band selected by a switch, possibly ganged with the phasing switch.

Input stage V1 provides gain to the auxiliary signal circuit (all other stages

are follower type circuits). Field effect transistor MPF102 was used because I happened to have some of these. Perhaps one of the newer low noise FETs could have been used with some advantage on the 28 MHz band. At lower frequencies, noise which comes in from the antenna is usually dominant and a low noise input stage is not so important.

Whilst the high gain in the input stage is needed for some conditions of operation, it can be too great for some other conditions, making it difficult to balance out the interference with the amplitude control set near minimum. A sensitivity switch S1 is provided to reduce the stage gain of V1 allowing the amplitude control to be advanced for these conditions. The same thing can be achieved by detuning the input circuit, but this also shifts the phase, thus altering the settings for balance of the phase controls.

The nominated power rail is 12 VDC. The actual supply voltage is not critical, provided it is sufficient to energise the relay. Load current is approximately 40 mA plus that consumed by the relay coil. This load current of 40 mA is fairly high because of the low resistance values (typically 1000 ohms) used in resistance coupling and the consequent need for high emitter/collector current in the transistors.

The need for low resistance to mask capacitance in these wide band amplifiers is apparent when one realises that even a small capacitance as low as one picofarad has a reactance near 5700 ohms at the highest frequency of 28 MHz. It is a different condition to tuned amplifiers, where the stray capacitance becomes part of the tuned circuit so that higher impedances can be used.

### Relay Switching

A 12 volt relay is provided to switch out the interference cancelling unit from the main antenna circuit when transmitting or when turned off. The relay is actuated when interference cancelling is in operation. The relay coil is operated by external contacts which are made when the associated transceiver is in the receive state. When the unit is switched out, the main receive antenna is directly connected to the transceiver by relay contacts A2 and A3. Other contacts A1 also disconnect the input of the active circuits from the

auxiliary antenna to protect the circuits from voltage induced into the auxiliary antenna from the main antenna. As a further precaution against RF pick-up and voltage surges, protection diodes D1-D4 are fitted at the input and output of the active circuits.

Of course, the interference cancelling system will also be of interest to DX listeners and, for this purpose, the relay can be omitted.

## Components

There is nothing special about components used. Main components include a two-pole, four-position switch, a two-pole, five-position switch, three toggle switches, two 1000 ohm potentiometers, a 12 volt relay with at least three changeover contacts, two high permeability toroidal cores and a few transistors and diodes. For V2 to V8, any small signal bipolar transistor with good high frequency performance does the job. Note that V3 is a PNP type, whereas the others are all NPN. The MPF102 (V1) could also be substituted by some other type of FET with good high frequency performance.

Diode OA202 is specified for D1 to D5 as it has a higher voltage and current rating than the typical 1N914, and more able to withstand a voltage surge. All resistors are low power rating (1/8 or 1/4 watt) and all capacitors are low voltage, having only to withstand the 12 V rail potential. The value of choke L1 is not critical. Its function is simply to eliminate DC resistance in series with the FET drain circuit and prevent bottoming of the operation point. For a given gate bias condition, drain current on a FET varies from sample to sample, making it difficult to define the operating point when resistance is loaded in the drain circuit. Suitable RF chokes, no larger than a small resistor, are available from such suppliers as Dick Smith Electronics and Jaycar Electronics.

I discussed earlier how some form of selective circuit is needed at the auxiliary input to reduce its susceptibility to cross modulation (refer T1, C1). I suggest that most radio amateurs could find something in the junk box to provide this coupled tuned circuit.

Layout of components is not particularly critical. I made use of a small aluminium box and mounted the controls on one panel which became the

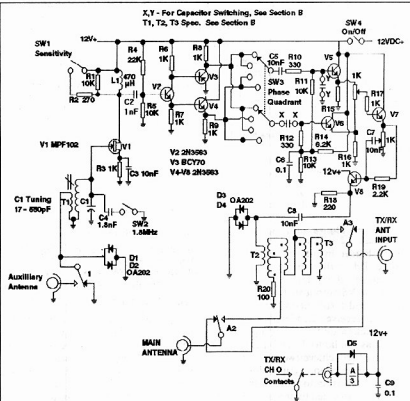


Figure 4 Interference Cancelling Unit — Section A

front of the box. Connectors for antenna and relay control were mounted at the rear. The transistor circuitry was mounted on matrix board with short interwiring leads between the board and the controls on the panel.

Any odd length of wire spaced from the main antenna can be used as an auxiliary antenna. The outer shield of the VHF antenna coax can be put to use for this purpose.

## Operation

Balancing out an interference signal is a bit tricky, but becomes easy once the technique is practised. Assuming an interfering signal is present, first disconnect or switch out the main antenna. Turn on the interference cancelling unit and advance the amplitude control a little. Set the phase capacitor band switch to the band in use. Set the sensitivity switch to maximum sensitivity. Peak up the input tuning for maximum signal and interference level, and then adjust the amplitude control for around the same level as was first heard using only the main antenna.

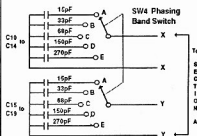
Re-connect the main antenna so that

signal is then being received from both antennas. Rotate the quadrant switch to a position which gives the lowest interference signal. Now adjust the phase and amplitude controls alternately a number of times until either an interference null or the lowest interference level is achieved. Check the other quadrants using the quadrant switch, again readjusting alternately the phase and amplitude controls (a better interference minimum might be found in the other quadrants). Settle on the adjustment which gives the best rejection of interference.

If a minimum of interference seems to occur near the minimum setting of the amplitude control, reduce gain with the sensitivity switch and see if a more defined minimum can be achieved with the amplitude control more advanced.

## Performance

As indicated earlier, the circuit works extremely well in balancing out localised interference such as power line hash, TV line time base noise and computer-generated noise. Under some circumstances, I found it could also



**Figure 5 Interference Cancelling Unit Section B**

reduce the general level of background noise. Another application is to reduce the level of an interfering carrier. I tried the unit out on the broadcast band where I found an interstate station completely swamped by a local station close in frequency. By balancing out the local station, the interstate station could be received quite well with only a slight amount of sideband splatter from the local station.

### Conclusion

The idea of interference cancellation in the antenna circuit has been reintroduced using R-C networks interfaced by transistor circuits and appropriate switching to achieve phase shift control. Having experimented with the device described, and seen how well such a system can be made to work, I am surprised that it is not found as a built-in feature of commercially made receivers and transceivers.

The main complication in a unit for this purpose is the provision of full phase adjustment over the range of frequency bands. A circuit which does this has been presented, but I am sure there will be other ways of achieving the results.

Articles we put in AR often generate correspondence and different ideas. Perhaps some of our readers have some other scheme they have tried out.

### References

1. Drew Diamond VK3XU — A Method of Reducing HV Power Line Noise — Amateur Radio, October 1976.
2. Drew Diamond VK3XU — Incredible Noise Cancelling Antenna — Amateur Radio Action, Vol 2, No 11.
3. G4HCL — SEM QRM Eliminator — Ham Radio Today, June 1990.

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# Australian Radio History

Arthur J Brown VK2IK  
33 Gloucester Rd  
EPPING 2121

## Twin Screw SS "Mantua" 1909-1935

**S**INCE THE FOUNDING of the P&O shipping company in 1837 to the present age, this organisation has a proud heritage of excellence to its travelling customers. In 1987 P&O celebrated the 150th anniversary of this service to the public.

You may wonder what this has to do with amateur radio and in particular the photos and the heading relating to the SS "Mantua". If you are of Italian birth, or have travelled the northern parts of Italy, you will know a city called Mantova, which is about 120 km SW from Venezia or Venice. Anglicising Mantova gives us Mantua. Why this ship was named Mantua I do not know. However, there may be some connection with the later details.

It is interesting to note that it was the birthplace of Virgil, a Roman poet — 70-19 BC. Mantua wear is a type of loose gown formerly worn by women. It is also a mantle, and is associated with the city of Mantua. Visitors to "Old Sydney Town" will see examples of this clothing at one of the displays.

### The Ship

The SS "Mantua" was one of the ships on which my father Charles Edward Brown worked during the years 1909-1911. He was employed as steward/pianist and, as far as I am aware, knew nothing of the historic significance, radio-wise, of this ship. From Lloyds' Register in the library of the Maritime Museum, Greenwich, London, "Mantua" is registered as: Steel, Twin Screw, 10700 tons, Electric Light, Built 1908, Caird & Co Greenock

(Scotland), 540 ft long, 65.2 ft wide, 33.2 ft deep.

During 1964/65 whilst I was on teacher exchange at North Gloucestershire Technical College, the principal, Mr Alex Hildrew, told me he had been a ship's engineer with P&O in the early 1920s. One of his stories was: Mantua was not a good sea boat, and was known in the company as the naughty one! He could remember seeing her in rough weather in the Gulf of Lyons off Barcelona on passage to Marseilles in 1926. On this occasion she was on her beam ends with her propellers thrashing the air. It must have been hell in the engine room (he would know!).

Alex was also able to give me other data regarding Mantua. From "A Hundred Years History of the P&O" 1837-1937 written by Boyd Cable, chapter 29, p 208 — War Services — when war was declared, Mantua was completing a cruise in the Baltic, and having been warned by wireless of the danger of being cut off by the enemy, she made a full-speed dash for home waters. An oft-repeated story told that being short of coal and unable to risk any delay or danger of capture or internment in a foreign port, the engineers gutted the ship of any fittings that would burn. Upon arrival, Mantua was converted to an armed cruiser with eight 4.7 inch guns within a period of nine days. She survived the war, returned to the company and was later sold to China Shipbreakers Ltd, for 32,000 pounds and delivered to Shanghai in August 1935.

## Radio Installation

Other details supplied by Alex from the P&O Information Service read as follows: "Mantua — designed for the Australian mail service, with 13000 IHP, quadruple expansion engines driving twin screws, she had a speed of 16-1/2 knots and carried 400 first class passengers and 375 crew (and now for the punchline!). Costing 308,053 pounds, she was one of the first P&O ships to be fitted with wireless, from new (her sister ships Morea and Malwa also had it fitted in May 1909). Mantua was the first British mail steamer to carry wireless into Sydney Harbour on her maiden voyage."

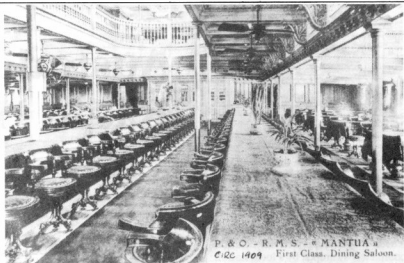
My father was not radio minded — he was musically oriented and played the piano on that maiden voyage of 1909. Meanwhile, its wireless operator "pounded the brass" on probably a Marconi Spark transmitter. Years later I went to UK (1938) on the "Jervis Bay". Its main spark transmitter was a rotary gap. Its backup transmitter was a single-valve self-excited oscillator! This ship's callsign was GSMQ. My callsign, acquired four years earlier, was — and still is — VK2IK.

As a corollary to the story, what of the receivers and transmitters that would have been used on shore to communicate with Mantua? From what I can glean from my father's work records, Mantua was in Sydney Harbour mid-July 1909, as she left Tilbury mid-May and returned mid-September.

Sydney Radio VIS, as we knew it in the 1930s, was not in existence. First identified as POS, it came on air 19 August 1912. The first officially licensed shore station was installed by the Australian Wireless Company in August 1910. This first coast station was installed on the 16th floor of the Hotel Australia and had the callsign AAA.

Around 1910 the Rev Father Shaw had an experimental transmitting station and factory at Randwick. He later, between 1910 and 1913, built about 17 Spark transmitting stations which were installed around the Australian coastline, Port Moresby and Thursday Island.

However, before all this, in 1909, it would appear that the only operative



SS "Mantua" First Class Dining Room.



Charles Edward Brown (extreme left) and musicians — circa 1909.

coast station was the experimental station of Charles MacLurcan. His station was situated in the Wentworth Hotel in Lang Street, Sydney. It is quite probable that this was the contact station on that maiden trip of Mantua and on its later trip in January 1910. Following those trips, Mantua went yachting, and on Indian Mail, and returned to Sydney with Australian Mail in February 1911. By this time she was probably working through the Pennant Hills Coast Station POS.

On a personal note, our family home at Marrickville, and later Earlwood, bore the name of "Mantua" as a reminder of our family's association with that "naughty ship".

## The photograph on the front cover — SS "Mantua"

This is a copy of a postcard posted by Charles Edward Brown, father of VK2IK, on board the "Mantua" en route to London from Bombay. The ship was returning with passengers and mail from India, having already taken passengers and mail to India. The card was addressed to Miss F Barchfield (Florence) at Paddington, Sydney. Flo was later to become Charlie's wife on 2nd November 1912. The "Mantua" sailed on 30 November 1909 for Australia, and the card bears that date as its postmark. The original card and others have been carefully preserved this past 82 years.

ar

# Pager Interference — How I solved My Problems!

Christopher Davis VK1DO  
123 Hawkesbury Cr  
Farrer ACT 2607

**A**MATEURS ARE no doubt aware of the difficulties some amateurs have experienced with their 144-148 MHz equipment changing its receiver performance, due to what is clearly the influence of nearby transmissions, both in terms of frequency proximity and geographical proximity.

If this problem is news to you, or if it brings you wide awake when you are reminded of the anger you feel toward these transmitters and sites, then let me gain your undivided attention by stating at the outset that my personal experience and objective tests indicate that the problem is rarely, if ever, the fault of the paging transmitter, or any aspect of its site engineering.

Some readers will have turned the page by now, or made a final mental note that VK1DO has lost the lock in his personal phase locked loop. Perhaps you are just not aware of how frustrating the difficulty of operating near pagers is.

Pagers have been repeatedly described in recent articles. Just to briefly acquaint you with their operation; the pager is a pocket sized receiver which monitors a preset frequency between 148 - 149 MHz. When an appropriately encoded signal is received, uniquely intended for that pager, an alarm bleeps. This bleep allows doctors, software engineers, important people and yuppies to create scenes in restaurants and picture theatres as they rush to the nearest phone box as if they were Clark Kent about to don the miracle outfit in readiness for selfless public service.

Some of the recent pagers incorporate quite sophisticated text receiving capacity with a limited LCD readout that requires the reader to page through the groups of words in a detailed message.

These pagers are an economical way of keeping all sorts of people on call, without the hassles of giving them a costly mobile phone. The number of people able to be paged and the number of different frequencies and sites often duplicating the messages guarantees pretty steady transmissions in the 148-149 MHz segment, particularly during business hours.

If you have never experienced interference, it might be a credit to the immunity of your receiver, or you might be sufficiently removed or worse still your receiver/coax/antenna are rendering you deaf. For amateurs with recently manufactured gear of an amateur intended kind, running some sort of gain antenna within five kilometres of a pager site, or even handhelds within two kilometres, the breakthrough when it occurs is often breathtakingly dramatic. Its like tuning to a busy packet channel. Other forms of breakthrough might just take the form of masking the signal you intend to receive with a phantom S meter deflection.

Without fail, amateurs I have heard discussing the problem immediately blame the on site engineering of the pager transmitter. What is erroneously being presumed is that the signals are in existence where our frequency readout, or channel knobs, suggest.

Assume for a moment that such an

unfortunate state were true. The pager signals which mostly bother me are located on a communications site, Isaacs Ridge, which is just under 2,000 metres away line of sight. When certain transmitters fire up, my rig indicates full scale deflection on those signals. During SSB operation the effects are far more exciting, and indeed mysterious as the onset of paper transmissions, while the beams are facing the pager site, is accompanied by the television sound carrier of local channel seven. Are not these pager engineers strange creatures? Fancy adding television sound to their transmissions!

Well of course the FM sound carrier is not on the pager transmitter. Nor is the signal actually plonk in the middle of the SSB band of two metres. If the signal were actually occurring on what our dials suggest, and assuming that they are strength nine plus on our outside antenna, then surely if we substitute an inferior antenna, still able to see the site, or an antenna on a remote site, still able to see the pager site, then each of these supposedly in band signals would still be tuneable, only weaker.

Well, below a certain level of antenna efficiency these signals completely disappear. Yes, they don't even have the technical courtesy to follow the usual pattern of gain degradation or path loss and gracefully remove the signal strength meter from full scale and head down progressively toward zero.

What we are observing in such a demonstration is a threshold effect. Below a certain level of received signal, the receiver ceases to suffer massive overload of either front end RF stages, mixer stage, or even the IF stages.

There are three causes of interference.

One is sheer front end overload with consequent additional mixer behaviour by stages intended to be linear, and indeed the mixer stage itself going into a mode of operation way beyond its expected role.

The second and most grossly ignored is the capacity for Phase Lock Loop generated local oscillator signals to have their own spurious components. The spurious component might be 60 dB down from the genuine article, however, it does not take much receiver capacity inadvertently looking for signals in the 148-149 MHz band to get

good reception from a 100 watt transmitter operating into a gain antenna that looks into your back yard.

The third cause could be a combination of the first two, and/or the IF stages simply crumbling under the weight of a signal, which might have been as much as one tenth of a milliwatt at the antenna, amplified by at least 40 fold in the RF stage. Perhaps another moderate increase in the mixing stage and the first IF stage is trying not to become non linear or mixer like with a signal of some 10 milliwatts.

Without getting stuck into a gripe on how they don't build things like they used to, it is true that the most immune radio I have on this site is a crystal driven 20 year old receiver with a multi element front end. The other is a commercial two way, worth perhaps 50% more than the usual amateur rig. These rigs basically operate as if the pagers were not there.

The solution at this site for weak signal SSB operation was the installation of a passband cavity tuned to 144.2 MHz with a notch cavity ahead of it tuned to 148.6 MHz, which is the principal problem here in southern Canberra. The passband cavity has about 500 kHz bandwidth allowing a check on beacons on 144.4 and has about 0.5 dB insertion loss. The notch has a negligible insertion loss and reduces 148.6 MHz way down before the preamp has a chance to be overdriven. The cavities are used before the mast head preamp to prevent initial overload and consequent production of seemingly in band signals.

My solution was courtesy of advice and logistical support given by Rob Millikan VK1KCM and Paul Bell VK1BX. Using two different receivers which were previously pathetic in their behaviour, the cavities transform their operation into a civilised mode. A recent acquisition of a receiver with a double balanced mixer with high level injection suggests that I can operate some receivers at this site even without cavities, until I switch in a preamp with probably insufficient strong signal capacity, once again sorted out by inserting the cavity filters.

The conclusion is, don't despair. On air bagging of the pagers is pointless. Demonstrate your technical experimental licence and try some cures. Good luck. **ar**

# A Message from the Board

**Ron Henderson VK1RH**  
Federal President



Your Board members took a few moments from their busy schedule to pose for this photograph. Seated from left are Neil Penfold VK6NE, Hugh Blemings VK1YYZ, Peter Maclellan VK3BWD, Murray Kelly VK4AOK. Standing from left are Jim Forsyth VK7FJ, Bill Wardrop VK5AWM, The Board President — Ron Henderson VK1RH, WIA General Manager and Secretary — Bill Roper VK3ARZ, Minute Secretary — Brenda Edmonds VK3KT, Terry Ryeland VK2UX, Roger Harrison VK2ZTB.

**Y**ES YOU DID READ that correctly, at the July Federal Council meeting a package of Regulations was adopted. They were made under Article 103 of the WIA's Articles of Association, These Regulations are the first steps of the restructuring of the Federal body initiated at the last Federal Convention. The changes are relatively simple, the Executive has been done away with, the Federal Council will now call itself the Board and Federal Councillors are now

also Directors of the WIA Company. For the purists in our numbers the Executive cannot just disappear until the Articles are rewritten, for it has legal responsibilities. In the interim the Councillors are the only Executive members and they have agreed to only meet when required for Australian Securities Commission business. The practice of quarterly meetings continues, however instead of spending the weekends in Executive, the whole of the two days is devoted to Board (or Coun-



cil to use the more familiar name) business.

**Why has this happened?** Well for several years the Federal Council had been dissatisfied with some aspects of the management of the WIA. I can recall that as VK1 Federal Councillor in the early eighties I had some misgivings. In particular the Council as the supreme body according to the Articles, is charged with making policy. Yet the Council, meeting only annually and very formally in Federal Convention, began to feel the Executive, which was required to meet frequently to manage the WIA, was usurping its authority. Our Past President Peter Gamble, identified this problem and recommended the Federal Councillors also become members of the Executive and meet more frequently to achieve a greater involvement in management. As you are aware this situation prevailed until last May and did bring the two groups closer together. Of concern was the difficulty in remembering when the meeting was in Executive; where everyone was a company director and responsible for the well being of the Federal WIA company, and when the meeting was in Federal Council where Councillors had to represent strongly the views of the shareholders, their Divisions.

**What else has changed?** When the present Articles of Association were adopted back in 1974 the Federal body met only annually to formulate policy. Since then changes, such as employing full time staff, taking over publishing AR from VK3, a single computer aided membership and subscription data base, more frequent negotiating with DoTC and two WARC's have occurred. The continuing demands upon Victorian amateurs to find volunteers for two management structures, their own VK3 Division and Federal Executive led to a shortfall of helpers that is still with us today. Whilst Federal Executive was demanding on people, still further volunteers were needed for the Publications Committee, FTAC and Federal coordinator positions. Only recently the VK3 Division, in announcing its council for this year, observed good volunteers were few and far between and noted their President was in his eighth consecutive year of office.

**Has this reduced the load on VK3?** Actions taken several years ago to elect

Executive members from outside Melbourne were only a partial success. No funds were available for them to attend monthly meetings and they could only contribute through projects or written assignments. As the number of non Melbourne Executive grew the Divisions accepted responsibility for travel to quarterly weekend meetings. The following year Councillors were elected to Executive and funded quarterly meeting included in the Federal budget. There is no doubt more frequent meetings have made the WIA a much more responsive body and the extended Executive did reduce the load on VK3 to an extent.

**Who is going to do the extra work?** The Federal Council has for several years observed the increased responsiveness of the WIA, brought about by employing a capable General Manager and supporting office staff. People these days expect quick answers from service industries. Our members are people and the WIA is very definitely a service industry, for it is here to serve members and not the other way around! Like it or not our present good service image in the eyes of members is due to paid employees. This does not mean the volunteer is no longer needed, far from it; however the volunteers duties have to be aligned with circumstances. Some jobs only need to be done at intervals and can be done by volunteers such as Federal and Divisional Councillors. Returning to the question posed, the Council felt the Executive, in its last few years, was looking too closely over the General Manager's shoulders, and being too involved in the routine operations of the WIA.

**Has too much been heaped upon the General Manager?** Yes and no. He has been given much more responsibility to conduct the day to day operations of the WIA without interference, however he does need broad guidance in the form of policy. That is where the Board is now required to devote more effort. Fortunately much policy direction already exists. The Convention resolutions from past years are listed in an index of extant policy. Also in the mid-eighties Council adopted a series of Policy Statements on what were then burning issues. Last May's Federal Convention directed the Board to review and update those Policy State-

ments and prepare new ones where gaps were seen. These recorded decisions become the guidance to the General Manager. Even with this background material the General Manager still needs support at often short notice. In the past, the President and Vice President provided that advice and the situation will not change. It does mean that with a President not resident in Melbourne the opportunities for face-to-face discussions are less, but with modern communications means, such as the Fax in the President's home, measures have been taken to get over these problems.

**Who is going to do the Executive's work?** Obviously those who have replaced them, the Board. Being a Board member now is very different from being a Federal Councillor ten years ago. My recollection of those days is one received monthly mailings from the Federal Office, answered the odd query, supplied your subscription figure once a year, and came to the Federal Convention for a talk-fest over an extended weekend. Agenda items for the Convention were not taken all that seriously and many which were adopted were impossible for the Executive to implement, given the resource limitations even then.

The present Board member receives weekly routine mailings, most require fairly quick responses and phone contact is quite common. Quarterly weekend Board meetings occupy typically 15 hours of formal business, plus many more in liaison. The agenda for the last one included 23 items, and financial management is an important legal responsibility of Directors. Indeed Directors are now expected to possess financial, administrative or small business skills. In carrying out their duties conscientiously they will have no time for other Divisional responsibilities. With such demands upon them, the days of the past when office bearers stayed on for years are over. It's now far better to do one job well for a limited tenure than take a rest break.

**Will you keep the members informed of Board activities?** Most certainly yes. This article is the first of a series to bring you all up to speed on recent happenings. On the other hand I am sure members do not wish to see valuable AR column space used on lengthy Board minutes arising from quarterly

meetings of over 15 hours duration. What the Board has in mind, is to publish in AR in point form, all the key issues covered at each quarterly meeting. Please take it as read that Board members examined the latest financial performance sheets, ratified the accounts for payment and perused the membership statistics, current correspondence list, outstanding Board resolutions and active DoTC topics. To confirm this promise the point report from the July Board meeting appears elsewhere in this issue.

**How do I, a member of the VK? Division find out more about Federal happenings?** Nothing has changed in that regard. WIANEWS will continue to be published each month together with the quarterly Board reports. Your Divisional Board member, formerly known as Federal Councillor, remains your first point of contact. The WIA Directory, published in every issue of AR provides names and contact details. Board members need feedback from their members to allow them to better represent the views of the whole of the WIA and not just a vocal minority.

#### **Report from the July Board Meeting.**

The Board, at its 18/19 July 1992 meeting:

- Adopted a batch of 52 Regulations, prepared under Article 103. They will facilitate restructuring of the management of the WIA until new Article of Association are prepared, approved and adopted.
- Received a report from the General Manager on Federal Office matters. The office computer LAN has been upgraded. Routine checking of incoming computer disks has revealed two instances of viruses in recent times. Government legislation will influence superannuation involvement by the staff, which will in turn influence the budget. Insurance covers are being rationalised.
- Received a report on publications in which changes to staff, duties and publication methods were explained. The WIA now holds unlimited tenure for publication of the Call Book. Increasing demands for the Call Book in digital form are arising, these would influence the sales of hard copies.
- Received a report on examinations which revealed the average pass rate

to be 51%. The income from examinations, after due account has been taken of foregone income on members' funds used to establish the service, showed the break-even point was now beyond three years.

- Heard David Wardlaw had attended another CCIR/WARC meeting.
- Voted "Aye" to the admission of the Association of Radio Amateurs of Slovenia and the Croatian Radio-Amateur Association to IARU membership.
- Received an introductory discussion paper from Roger Harrison on AR production and referred it to the WIA's Publisher for comment.
- Noted the matter of a cross band 2 — 10 metre repeater proposal from VK7 could well be resolved by the revision of amateur licence regulations now under negotiation.
- Discussed at length a costing review of the WIA Examination Service, observing the good availability of the Service had led to examiners scheduling many frequent small exams which had not been anticipated in the original costing planning.
- Agreed the WIA Exam Service is a service to all amateurs and potential amateurs, whether WIA members or not.
- Agreed members' subscription funds should not subsidise the WIA Exam Service, and agreed use of such members' funds must be adequately recompensed including foregone income.
- Noted the need for a balance between services to members and trading operations, and agreed that in costing operations of the WIA Exam Service all identified costs, including foregone investment income, be taken into account.
- Agreed the WIA Exam Service is to achieve an annual operating profit, and endorsed an increase in each examination subject fee of \$5 to take effect from 1 Oct 92.
- Discussed at length a paper from the General Manager on the cost effectiveness of various recruiting options and provided guidance to him on a number of points. The principle considerations are retaining members and providing services to members.
- Received a briefing from the General Manager on amateurs' submis-

sions to DoTC on the proposed licence changes as copied to the WIA. The consensus of views expressed did not differ markedly from existing WIA policy. In particular the creation of a range of licence grades, with increased privileges for increased qualifications was supported. The successor "Combined" licence was seen as a distinct and higher grade than the present combination of Limited and Novice licences. The General Manager was provided with guidelines for negotiating the completion of the matter with DoTC.

- Adopted a definition of admissible expenses for Board members and Officers.
- Examined subscription options for 1993, observing the difficult financial circumstances of the nation and consumer price index trends.
- Noted a replacement was required for the Federal Videotape Coordinator, and asked Board members to consult with their Divisions as to a suitable person.
- Referred a draft Policy Statement on Trading to Peter Maclellan for redrafting for the October meeting.
- Observed that not all amateurs are contributing to the cost of international representation, namely WARC and IARU.

The Board identified three options :-

1. funding directly by DoTC.
  2. funding by DoTC through an addition to all licence fees.
  3. partial funding from a levy on examinations.
- The General Manager was directed to negotiate these with DoTC.
- Adopted the General Manager 1992 Evaluation and Performance report.
  - Reviewed two batches of revised Policy Statements, made amendments to some and referred several for specialist advice.
  - Noted a proposed timetable for the update of the Articles of Association.
  - In general business observed the impending change of Director for VK2, the need for Board Standing Orders and a proposal to have the Board briefed on its legal responsibilities by a legal representative.
  - The Board met formally for over 15 hours and agreed to meet again on 24-25 Oct 92 in Melbourne. **ar**

# Remembrance Day Contest — Opening Address

**T**HIS YEAR'S Remembrance Day Contest opening address was given by Gwen Andrews, the Assistant Secretary of the Radiocommunications Branch, in the Department of Transport and Communications.

The Operations Branch, or R-OPS, is responsible for licensing, frequency assignment and regulatory activities in spectrum management throughout Australia. It comprises more than 300 staff, located in 27 offices across the country.

Ms Andrews' career in communications policy spans 10 years and two countries. A Canadian by birth, she is now a permanent resident of Australia. She worked for the Canadian Department of Communications for a number of years, specialising in broadcasting and satellite policy, and in federal-provincial relations. During 1987 and 1988, she worked in Australia in broadcasting, telecommunications and radiocommunications policy.

She returned to Australia at the beginning of 1991 to work on the Department's review of spectrum pricing and management. She was the chief author of the Department's submission to the House of Representatives Committee on Transport, Communications and

Infrastructure on Management of the Radio Frequency Spectrum. She also helped draft the Department's proposals to Government in response to the report on the Committee.

She was appointed Assistant Secretary of the Radiocommunications Operations Branch in February 1992.

Ms Andrews lives with her husband on a property near Gundaroo, north of Canberra.

## The RD Contest Opening Address

"Thank you for giving me this opportunity to speak to you at the opening of the 1992 Remembrance Day Contest. I understand that this event has been a key feature of the amateur service in Australia since the first memorial contest in 1948, 44 years ago. I commend the organisers of the contest for their efforts in continuing this important tradition to commemorate the sacrifices made by Australian amateurs in World War II.

Amateurs throughout the world have played an important part in the development of radio-communications, often pioneering technological advances that are benefiting the commu-

nity as a whole. There is something special and unique about amateur radio-communications. It is a truly experimental service that actively encourages the use of the latest technological advances (such as satellite and computer-aided techniques), yet it still continues to attract a wide interest in one of the oldest forms, the use of morse code.

In the Department we have an important role to play in fostering the continuing development of radio-communications technology and in contributing to the Government's objectives in micro-economic reform. Improving the efficiency of licensing procedures, developing standards and allowing services to operate in a flexible, but controllable, environment are important objectives within the Radiocommunications Division.

A key priority of the Radio Communications Division is to ensure that the system of spectrum management provides greatest benefits to the community. A report of the Bureau of Transport Communications Economics and a more recent parliamentary inquiry into radio frequency management both identified shortcomings in the current system of spectrum management. Growing demand for access to the spectrum in a rapidly changing technological environment, together with recent reforms in telecommunications and broadcasting policy, will increase congestion in the more popular frequency bands and increase pressure for major reform of spectrum management.

Proposals to Government that would see more market-based techniques of resource management introduced are under consideration. The Department recently made an important step towards improving the future of the amateur service by reviewing some aspects of the service. Many of you will be aware of the Department's initiative, in consultation with the Wireless Institute of Australia, to introduce important changes to amateur licence conditions. We have also sought advice from the broader amateur community on these proposed changes, and we appreciate your responses.

A key element of proposed changes is to place more emphasis on self-regulation within the service, leading towards greater involvement of



**Gwen Andrews, Assistant Secretary of the Radiocommunications Branch DoTC records the 1992 Remembrance Day Contest speech.**

amateurs in the future management of the service. We want to create an environment that will encourage Australia's youth to gain an easier entry into the service. We also want to provide an incentive for participants within the service to further develop their interests and knowledge of radio-communication,

using the latest technology, without unnecessary restrictions.

Changes in the regulatory approach to the service go beyond the national level. Earlier this year, Departmental staff, with the assistance of representatives of your own amateur service, participated in the World Administrative Radio Conference in Spain. The conference covered a wide range of issues and was the first such opportunity to address many of the broader radio regulatory issues since the previous

World Administrative Conference of 1979. The results of this year's conference will require additional work, both internationally and within Australia, to implement and manage the changes. In the Department we will need to arrange a considerable number of changes to Australia's Spectrum Plan, in consultation with industry bodies and users. The amateur service representatives in this year's conference had a unique opportunity to learn from the experience in exploring options for reform of the process of international frequency management and decision making.

To return to the purpose of today's contest, I would ask that you take time to reflect on the sacrifices made by 26 Australian amateurs during World War II, it is also a time to think about the significant contribution that has been made by many of the past and present leaders in the amateur community, at your national and local level, who have given so much of their time and effort to the community. Australian amateur operators have made, and are continuing to make, significant contributions by their unselfish assistance in times of disaster. It is also encouraging to see that many amateurs throughout Australia are continuing to foster Australia's links with other countries.

In closing I would again like to thank you for this opportunity to talk to you on this important commemorative occasion, and to wish you well in the forthcoming contest!" **ar**

# JENLEX FILTERS

## Get Rid of Pager Interference

The range of JENLEX 50 Ohm helical filters is designed to reduce or eliminate pager interference on the 2 metre band. They are compact, weatherproof filters suitable for indoor or outdoor use.

• HNF1: is a 2-stage filter rated at 100 Watts, with a notch depth of better than -40dB at 148.6MHz and an insertion loss of 1.7dB at 147.600MHz.

**Price \$175**

• HNF2: is a 4-stage filter rated at 50 Watts, with a notch depth of better than -40dB at 148.6MHz. Maximum depth of notch is -80dB with narrow band width.

**Price \$175**

• HNF3: is a 3-stage filter rated at 50 Watts. Maximum depth of notch is -55dB with a narrow bandwidth.

**Price \$150**

• HNF4: is a 2-stage filter rated at 10 Watts with an attenuation better than 30dB at 148.600MHz and an insertion loss better than -2dB at 147.600MHz. BNC connectors are standard for this model, small enough to be used on a hand held.

**Price \$150**

All prices are ex-works, including Sales Tax, and subject to change without notice. Packaging and Post is \$10 on all units. Notch frequency and depth can be adjusted at the factory at the time of order to suit the user's local needs.

Send for an illustrated leaflet and detailed performance curves.

122 Wanda Street, Mulgrave, Victoria, 3170. Phone: (03) 548 2594. Fax: (03) 547 8545.

# Equipment Review

## The Yaesu FT-26 2M FM Hand Held

Ron Fisher VK3OM  
"Gaalanungah" 24 Sugarloaf Rd  
Beaconsfield Upper 3808

**H**AVING BEEN THE proud and satisfied owner of a Yaesu FT-23R for some years, I was delighted when Dick Smith Electronics suggested I might like to look over the new FT-26.

There were two things that impressed me about the original FT-23. First, the size, and second, the ease of use. There were just eight buttons, three knobs and a push switch to select high or low power. Simplicity itself. There were a few things that the 23 did not do well, though. Frequency stepping was selectable in two rates only, five and 10 kHz. Neither of these was ideal. The 10 kHz rate does not fit our band plan and, although the 5 kHz does, it was far too slow when tuning large segments of the band. Secondly, there were only 10 memories. Not bad for the time, but a few more would have been useful. Well, thanks Yaesu, you have retained all the good features and well and truly fixed the not-so-good ones.

### The FT-26. Features

The FT-26 is a compact hand-held receiver that covers 144 to 148 MHz on

transmit, and 130 to 174 MHz on receive. With the supplied battery pack it weighs in at 350 grams. The overall size is just 123 mm high, 52 mm wide and 32 mm deep. The shape has been rounded off compared with the square old FT-23. It fits into the hand very well. The battery supplied with the transceiver is rated at 7.20 volts, 700 mAh, and gives the rig a 2 W output capability. A larger 12 volt 600 mAh battery is available which produces a maximum output of five watts. There is also a DC input socket for a maximum input of 16 volts. With a full 13.8 volts input from a car system, the power out from the rig gets up around six watts. A wall pack charger is supplied which takes care of the 7.2 volt FNB-28 pack. A carry strap, belt clip, carry case and instruction manual complete the package.

The memory capability will satisfy the most critical. Believe it or not, there are now 50 full-time memories. In addition to this there is a call channel and two memories for upper and lower limits for band scanning. A new feature is the ability to tune each memory



Top view of the Yaesu FT-26, showing how readily it fits into the hand.

so that it acts like a separate VFO, and then choose to store the new frequency and retain the original.

### The FT-26 On the Air

Having used the FT-23 for some years, the operation of the new FT-26 was very easy to master. I loaded up a few memories and got on the air. Received audio quality was crisp and clean. Naturally, audio power output is somewhat limited, as with all handhelds, but quite adequate for normal hand-held operation. For use mobile in an average car, an external speaker would be an advantage to make the most of the limited audio output power. Audio output power was measured at just over 200 mW at 10 per cent distortion with an eight ohm load. Transmitted audio was rated as good quality, and the deviation appeared to be spot-on. The MH-12 speaker microphone I have for my FT-23 was compatible with the FT-26 and produced very acceptable quality on both transmit and receive. There are now four levels of transmitter power output selection. Using the 7.20V battery, high power produced an output of two watts, while low power No 3 level produced 0.5 watts output.

One interesting feature is the ability to change the display to a simplified readout. Instead of showing frequency, the channel number is displayed (see photo). I think I prefer the actual frequency to be indicated, but at least this does give another option. It is also possible to lock the keyboard completely to stop accidental changes in operating parameters. Low power No 2 provides 1.5 watts output, while low power No 3 level rises to 3 watts output.

As mentioned earlier, stepping rates can be set to 5, 10, 12.5, 20 and 25 kHz. As is usual, I found the 25 kHz rate fits

our band plan ideally and enables you to tune up and down the band very quickly. The FT-26 version sold in Australia has a special microprocessor to provide an automatic repeater offset set up for the Australian band plan. This feature can be activated or de-activated as required. CTCSS facility can be added to the transceiver as an option and, as it was not included in our review model, I was unable to check this out. However, a code squelch system is included. This even has a pager mode which makes the rig ring like a phone when the correct code sequence is received. Of course you need two similarly equipped transceivers for the system to operate. Another interesting feature now included with most Yaesu VHF and UHF transceivers, is the ability to transfer the memory contents of one transceiver into another. Has anyone out there actually used this feature?

One thing I found out right at the end of my test was that the transceiver will not fit into the Yaesu CA-2 desk stand. The size is right, but the locating grooves on the FT-26 are in a slightly different position than the FT-23. So, no way will it plug in.



### The FT-26 Instruction Manual

Like all current Yaesu manuals, the FT-26 owner's manual is very well presented. One of the very nice features is a fold-up concise instruction sheet. Until you get into the way of operating the rig, you can slip this into your wallet for instant reference. A full circuit diagram is included but, as usual, no technical information is supplied.

### The FT-26 Conclusions

This would have to be one of the neatest little hand-helds around. It has all the facilities needed, and yet is very simple to operate. Yaesu seems to have found the right formula for hand-held transceivers. When my FT-23 wears out, this one will be top of the list. The FT-26 retails for \$399, and our review transceiver was supplied by Dick Smith Electronics, to which all enquiries should be forwarded.

Front view of the compact Yaesu FT-26 2 metre FM hand held transceiver.

ar

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# Technical Abstracts

Gill Sones VK3AUI  
30 Moore Street  
Box Hill South Vic 3128

## Electrostatic Discharge Detector Probe

**B**RYAN P BERGERON NUIN in QST May 1992 describes an inexpensive probe to detect electrostatic discharge. Electrostatic discharge is the charge which lurks waiting to mangle the IC's of the unwary. It is responsible for many puzzling failures in modern electronic equipment.

The probe uses a liquid crystal display (LCD) from a digital thermometer. Any LCD will do but a thermometer also provides a very convenient probe housing. The general setup is shown in Fig 1. The thermometer electronics are discarded and only the LCD display is used. The LCD forms a very high impedance detector and displays any potential encountered.

Both SHARP and BD makes of thermometer were shown undergoing conversion. Similar units may be avail-

able locally. As with all such schemes some experimentation is called for.

## Burn Out Proofed Tune Up Noise Bridge

There have been many schemes to use a noise bridge to allow tuneup without transmitting a carrier on the frequency. All goes well until the time the transceiver is inadvertently keyed into the noise bridge. In Break In Jan/Feb 1992 A M Wooler ZL1AUW describes a modification to one such circuit to burn out proof the noise bridge.

The article is called Quiet Tune Revisited. RF burn out proofing is obtained by placing small lamp globes in series with the line to the transceiver and also by some protective diodes in the noise bridge. The circuit is given in Fig 2.

Lamp globes have a low cold resistance and hence receive loss is small. The loss is insignificant in any

case as the only signal being received when the globes are in circuit is from the noise bridge. Further protective diodes are incorporated in the output stage of the noise bridge.

Should the transceiver be keyed up into the noise bridge the lamps light alerting the operator and limiting the RF current flowing into the noise bridge. The current is insufficient to damage the noise bridge with its added diodes.

A local equivalent of the basic tune up noise bridge appeared in AR for Sept 1991. This describes a device similar to the ZL Quiet Tune which was a ZL kit.

## Frequency Shift Attenuator

Attenuating strong signals is especially difficult when using a hand held transceiver in a fox hunt. The signal tends to bypass the attenuator and find its way into the front end straight through the plastic case.

PA0ZR F A O Eenhoorn found a way to get around the problem and described it in Electron June 1991. Also featured in Technical Topics Rad Com Dec 1991. He frequency shifted the signal 500 kHz and attenuated the mixing product. Only one transistor and a mixer diode are used. See Fig 3.

The mixer diode is made to double as an attenuator by varying the DC current through it. This gives initial attenuation on the signal frequency and later on the shifted frequency. The diode functions as both diode mixer and attenuator. By this means a large range of attenuation is available. For maximum sensitivity the whole device can be bypassed. Then connect it in series as the signal builds up as you close on the fox.

Locally a 600 kHz oscillator may be more convenient. This would allow the reverse repeater facility of the hand held to be used to swap between direct and heterodyned signal.

For those not too keen on a free running oscillator even at 500-600 kHz then maybe a little oscillator circuit from an anonymous designer may appeal. This uses a US color crystal of 3.579 MHz and divides it to give close to 600 kHz. See fig 4. This device originally appeared in AR March 1988. You may like to try it with PA0ZR's idea. The output should be adequate to drive the base of the emitter follower. A 3

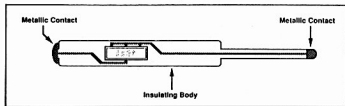


Fig 1 LCD from Thermometer makes Electrostatic Discharge Probe



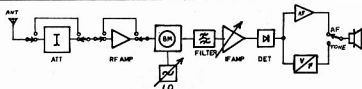


Fig 6 Fox Hunt Beam and Receiver.

pitch of an audio tone. This is similar to the scheme incorporated by Ian VK3MZ in a local sniffer. AR Jan 1992.

The receiver and beam are shown in Fig 6. The receiver skeleton block diagram is shown in Fig 7.

The receiver tunes 144 to 146 MHz. A switchable front end attenuator is provided and the RF amplifier can be switched out of circuit. A crystal filter

is used after the diode balanced mixer. The IF amplifier stages gain is controlled by a manual gain control. The detector drives an audio amplifier and a voltage to frequency converter giving an audio signal strength function.

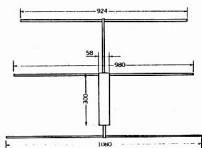
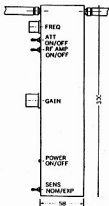
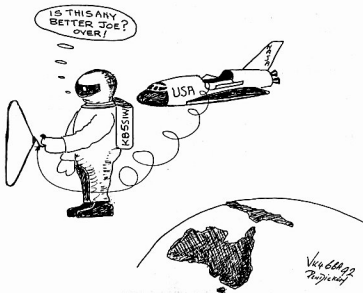


Fig 7 Skeleton Block Diagram of Receiver.



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- 2.5 watts RF output as standard, 5 watts with 12V DC (or optional FNB-11 NiCad)
- Better than 0.16uV (12dB SINAD) sensitivity
- Stand-by current consumption (1sec SAVE) only 7mA
- Programmable power saver for extended operating periods
- Keypad or dial frequency entry, with selectable tuning rates
- 49 tuneable memories which store repeater offsets
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- Keypad or dial frequency entry, with selectable tuning/scanning rates
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Just like the FT-1000, Yaesu have designed the FT-990 to be as easy as possible to operate. The front panel layout puts all frequently used controls right where they should be... at your fingertips. All controls are clearly labelled and the digital display provides an abundance of information in an uncluttered and easy to read format. The front panel keypad offers one-touch band selection (160m - 10m) with 2 independent VFOs per band and 90 memories that store the operating data held in both VFOs. You can't help but appreciate the large back-lit analogue meter rather than those confusing bar-graph meters found on other transceivers.

### Direct Digital Synthesis (DDS)

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### Unique Features

- Customizable RF Speech Processor - Yaesu's unique Frequency Shifted Processor (FSP) lets you shift the IF passband of your transmitted SSB signal to provide maximum punch with your voice/microphone combination.
- Digital Audio Filtering - Razor sharp audio filtering is available for tough SSB and CW reception conditions through the use of an astounding dual digital Switched Capacitance Filter (SCF) with independently adjustable selectivity skirts.
- Packet/RTTY - Separate interface jacks for a RTTY terminal unit and a Packet TNC are provided, while the mode selection buttons disable the mic automatically in the digital modes.

### Convenience Features

- A highly efficient AC switch-mode power supply is built-in. It allows high duty-cycle transmission while keeping the weight way down, saving space and the added expense of external power supplies.
- An in-built Automatic Antenna Tuner with 39 memories is standard!
- Modular construction maximizes selectivity and makes servicing easy.
- Effective interference rejection is facilitated by IF Shift, IF Notch, IF bandwidth and SCF audio controls.
- An adjustable noise blanker, a 500Hz B/W IF crystal filter and a comprehensive, easy to read user manual are also supplied.



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High strength aluminium tubing and a 4mm (wall thickness) extra heavy-duty base section provides optimum mechanical stability. What's more, stainless steel clamps and hardware guarantee a longer life. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs the 5BTV can be fed with any length of 50 ohm coax cable. Cat D-4920

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### DIAMOND D-130J DISCONE ANTENNA

This quality Japanese disccone antenna covers the frequency range 25-1300MHz, and was designed to be easy to assemble and install. The extensive use of stainless steel in the D-130J makes it very durable, while allowing transmission on the 6m, 2m, 70cm, and 23cm bands with a maximum power rating of 200W PEP. Comes complete with most mounting hardware and instructions. Cat D-4840

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A high performance dualband antenna at a down to earth price! The ST-7500 is just 1 metre long and uses a ground independent design to provide high gain (3dB on 2m, 5.5dB on 70cm) with a maximum power rating of 150W. Quality construction plus a tiltable whip structure makes it especially ideal for the discerning mobile operator. Requires SO-239 antenna base (D-4035 recommended) Cat D-4810

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**\$79<sup>95</sup>**



# DICK SMITH ELECTRONICS

# A Simple Tuning Dial from Junk Box Parts

Drew Diamond, VK3XU  
'Nar Melan'  
Gatters Rd  
Wonga Park Vic 3115

Drew Diamond presents an interesting solution to the problem of finding a suitable dial drive for that receiver or similar project.

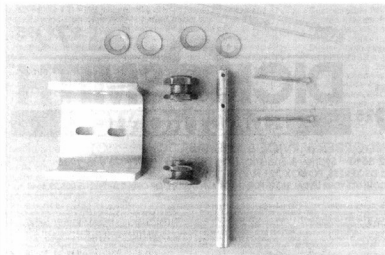


Photo 1 Component Parts of the Drive

**I**F YOU WERE TO ask a radio enthusiast; "what was the most difficult part to get for that receiver project of yours?" the reply may well be "a suitable dial". Gone are the days when we could walk into a radio components shop and buy one of those beautiful Eddystone dials (mind you — they cost an arm and a leg!), or even nice little Jabel dial for that matter, and the superb military type worm drives have all but dried up ( have you seen the prices asked at radio club sales lately?). At least one well-known firm can supply a dinky little vernier with a numbered scale, or a planetary drive, but they do seem rather expensive, particularly in the present circumstances. Some resourceful workers have succeeded in making serviceable cord type dials, but my own attempts have not really been satisfactory, nor were they what you would call simple to make. Here is an alternative approach, which provides surprisingly good resetability, reduction, and smoothness of operation.

The idea is borrowed from the rim-driven record turn-table principle, where a small rubber roller runs against the much larger platen. Here the knob driven 1/4 inch spindle (apologies for mixing metric and Imperial, but radio people still talk about, and use, 1/4 inch spindles or shafts) runs in two plain bearings, and a small length of rubber tube, fitted onto the spindle, is adjusted so that it grips the rim of the disc. If wall thickness of the rubber is small, say less than 2 mm, backlash will be minimal. The scheme will work with just one bearing, but smoothness and resetability is marginally inferior.

The plain bearings were obtained from two older style potentiometers (the newer ones may not be 1/4-inch bore). The supporting bracket is of extruded aluminium. The two holes for the bearings must be truly in line. Using a small round file, elongate the chassis mounting holes in the bracket to provide a means of adjusting the pinch pressure. The spindle is held captive with a small split-pin or scroll-pin each side of the rear bearing. Shim each pin with a plain washer or two, leaving just perceptible end-play. The spindle may be of brass or steel (avoid



aluminium for running surfaces — it has no self-lubricating properties, and soon becomes “gritty” with use). Before assembly, check that the spindle runs smoothly in the bearings, with perhaps just a microscopic amount of play. A tight fit can usually be eased by carefully running a 1/4 inch drill through the bearings a number of times. Also, polish the spindle by fixing it in the chuck of your drill — lathe fashion, and applying steel wool to the rotating workpiece. Upon assembly, a tiny smear of grease may be applied to the rear bearing, and the merest “skerrick” to the front (lest it should creep onto the rubber tube).

The rubber part is “gas” tube, id 6 mm, od 10 mm, and seems to offer best durability and gripping characteristics for the application. It should be obtainable in small quantities from Clark Rubber, and scientific/medical equipment suppliers. 1/4 inch id fuel hose is a good second best.

Dial discs are not too hard to find. Valve type BC radios generally employ a disc attached to the variable capacitor for the cord dial, so maybe you could obtain one from a vintage radio buff. They can also be ordered from some disposals sources and older style radio parts shops. Make sure it has a rounded edge for running against the rubber roller. The front of the disc is painted with white undercoat in order to receive press-on letters at calibration. An arc shaped aperture in the front

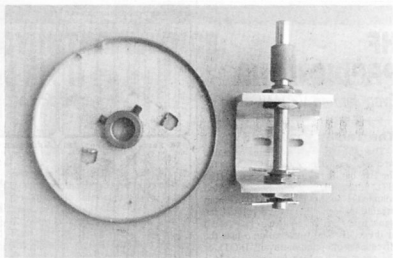


Photo 2 Dial Drum and Drive

panel and perspex window completes the assembly. The viewing area may be illuminated with one or two dial lamps positioned at the end(s) of the perspex so that light is conducted and diffused onto the calibrations.

In the example shown, the receiver covers a 1 MHz band, from 3 to 4 MHz. The disc diameter is 100 mm and the rubber diameter is about 8 mm, so the ratio is about 12.5:1. The 1 MHz is spread over one-half rotation of the disc, so there are about 6 spindle rotations to cover the whole band, which in this instance works out to about 170 kHz per knob revolution.

### Related Reading

1. Homebrew (cord) Tuning Dial-Pivnichiny, N2DCH, Ham Radio, Dec. 1988
2. The Fine Art of Improvisation-DeMaw, WIFB, QST, July 1985

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## A Call to all Holders of a Novice Licence

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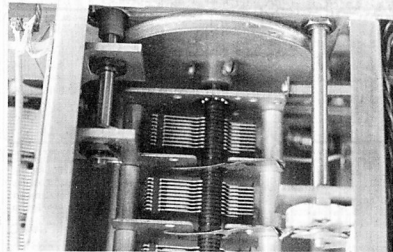


Photo 3 Complete Assembly

*Evan Jarman VK3ANI*

## Amateur Radio, September 1992

# RADIO FREQUENCY INTERFERENCE: How to Find It and Fix It

Editors: Ed Hare, KA1CV and Robert Schetgen, KU7G.

ISBN 0 87259 375 4, First Edition,

Published by the American Radio Relay League 1991.

16 Chapters, approx. 150+ Pages, WIA Divisional Bookshop Reference:

BX186 Price: A\$27.00

I have owned and read many books on the subject of RFI, EMI, and EMC, over the years, and all have their good points. However this time they've got it right.

In one A4 sized publication of high quality production just about every facet of this diverse and often troublesome and perplexing problem area of our hobby is thoroughly covered.

The publishers have wisely elected to recruit Authors with specialist knowledge in their field to write each individual chapter rather than one or two individuals to write the entire publication. In doing this the high levels of expertise of the writers shows through strongly, and is further evidenced by the numerous examples of problems and associated remedies for a myriad of EMI situations.

The Foreword, by David Sumner, K1ZZ, Executive Vice President of the ARRL, rightly points out that this book

covers not only Radio Frequency Interference, but the broader subjects of Electro Magnetic Interference and Electro Magnetic Compatibility.

Topics covered, for example, are: the First Steps, EMI Fundamentals, Troubleshooting, EMI Direction Finding, Transmitters, Television, Telephones, Audio Equipment, Power Lines and Electrical Devices, External Rectification, Receivers, Computers, Automobiles, Filters, a suppliers list, and other related topics.

This well indexed publication is also packed full of charts, drawings, diagrams, tables, photographs, humorous sketches (cartoons!), problems and cures, in fact I stopped counting at 150, but estimate that there must be about 600-700+ of the above examples that are very clearly illustrated, and help to make this a very easy manual to read and understand.



A well recommended publication for every Amateur or anyone for that matter (TV Service personnel, etc.) who becomes involved with EMI diagnosis, prevention, and cures. It is the best book in its class that I have read to date.

The review copy was supplied courtesy of Stewart Electronic Components, and is available from your divisional book shop.

Reviewed by: Bruce R Kendall  
VK3WL  
ar

## Repeater Link

Will Mc Ghie VK6UU @ VK6BBS 21 Waterloo Cr, Lesmurdie 6076

This month's Repeater Link is an article written by Will Scott VK4XP, who looks at the various methods of linking repeaters together. At a time of de-regulation in the repeater scene, this article puts into perspective the interesting options that can now be pursued without hindrance from short sighted regulations. Never before have so many possibilities been available to repeater builders and managers.

Here are a few ideas to start you thinking from Will Scott VK4XP.

This article describes in simplistic terms the fundamentals of repeater linking. It discusses the five methods primarily used for linking, the need for standardised access across Australia and is the foundation for future articles to be submitted about repeater link controllers.

### The Five Methods of Repeater Linking

You may have thought that connecting repeaters together is a complex task requiring

lots of expertise and dollars. When it comes down to it the process is quite straight forward and need not cost the earth. There are in effect only five methods of connecting repeaters together. This article outlines the main concepts involved. All repeaters are linked using either one or parts of several of the methods covered below.

#### Wired Link



Repeater 1  
TX A  
RX B

Repeater 2  
RX C  
TX D

The wired repeater link is the easiest and cheapest way to link two repeaters together. Simply run a cable between both repeaters and the link is complete. Everything that is sent through one repeater is sent out through the other.

This method is ideal when two repeaters share the same site, for example a 6 m repeater and a 70 cm repeater.

#### In-Band Link



Repeater 1  
TX A  
RX B

Link Radio  
TX C  
RX D

Repeater 2  
RX C  
TX D

In-band linking is a simple method of linking repeaters on different sites. It consists of installing at one repeater another transceiver used for linking. This transceiver is a mobile set tuned to the far distant repeater.

As can be seen from the diagram above, Repeater 1 is linked to Repeater 2 by a link set at Repeater 1. Repeater 1 transmits on frequency A and receives on frequency B. Repeater 2 transmits on frequency D and receives on frequency C.

The Link Radio wired to Repeater 1 transmits on frequency C to Repeater 2. It sends to Repeater 2 everything that is picked up by Repeater 1. And in return everything that is transmitted by Repeater 2 on frequency D is also picked up by the link Radio and passed to Repeater 1 for retransmission on frequency A.

A beam antenna is often connected to the Link Radio to give a good signal for the link path itself.

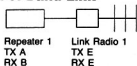
This method of linking is ideally suited for a link path that is line of site between both repeaters. It is economical in the sense that only one extra radio is used and no hub (or centre relay station) is required.

Sometimes problems of interference occur at the site where the two radios are in-

stalled. The Link transmitter can interfere with the repeater receiver, and vice versa. Additional cavities or separation between antennas may be necessary.

At present the link between 6800 Bundaberg and 7625 Miriam Vale temporarily uses this configuration.

## Out-of-Band Link



Out-of-band linking comes from using link radios not in the same band as the repeaters. The diagram shows two 2 metre repeaters connected by a 70 cm link. The 70 cm link is on a simplex frequency, shown as E. Two link radios are required, not one, as for the in-band link. The link radios are

just transceivers set to a single channel.

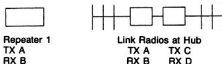
This method is easier to set up than the in-band linking method because you don't have two radios on the same band at the same site interfering with each other. Unfortunately this is paid for with the extra radio required.

The advantages are that no additional equipment needs to be installed to either repeater. As well, it is possible to link together repeaters which are not within line of site of each other.

This method is currently in use by the Central Highlands Amateur Radio Club for linking the 6925, 6950 and 6975 repeaters near Clermont, Blackwater and Sarina, together. The hub was originally in Middelmont but has recently been relocated to a more central and much higher site further to the west.

A minor variation of this configuration was also used for the tests between 6900 and 6800 a few years ago. This time a single scanning transceiver was used at the Hub, instead of two fixed frequency sets. The receiver scanned between B and D and when a signal was heard on either, the appropriate transmitter frequency was selected.

## In-Band Hub Link



In-band hub linking is, as the name suggests, linking two repeaters with link radios located at a central hub. The link radios are transceiving in the same band as the repeaters themselves. The diagram above shows both Repeater 1 and Repeater 2 established on different sites. To form the link a third site, called the Hub or node, is established.

At the hub are two transceivers wired back to back. It is a busy little site. What comes in on, say, RX B is immediately sent out again on TX C and what is received on

RX D is immediately transmitted on TX A. But this happens only in one direction at a time, from B to C or D to A. The Department of Transport and Communications would call this a dual translator.

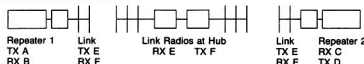
You can see that there are several advantages and disadvantages to this method. The disadvantage is that a third site must be built, the Hub. Also at the Hub a radio must transmit in the same band as a receiver, without interference — a challenging problem to solve at the best of times.

One note of caution concerning this method. All repeater links can, if improperly wired, cause a feedback condition to occur, like a dog chasing its tail. This configuration is especially susceptible to this.

It goes like this. First Repeater 1 transmits and the link is established to Repeater 2. Then 1 tails out and the link drops out, causing repeater 2 to tail out. But the link picks up Repeater 2's tail and sends it to 1 again, causing Repeater 1 to fire up. When 2 tails out the process repeats.

There are a couple of ways to solve this. One is to put the tails onto the link and not the repeaters, as happens for the Central Highlands network. Another is to put in link re-establishment delay circuits at the Hub, as was built into the 6900-6800 test link. Both methods work quite satisfactorily.

## Out-of-Band Hub Link



The final method of linking repeaters is called Out-of-Band Hub Linking and is shown in the diagram above. The link is established by placing a link transceiver at each repeater tuned to the Hub translator frequency. Because the link is not on the band of the repeater it is called out-of-band linking.

Typically the repeaters are on 2 metres while the links are set up on 70 cm. In the example above the link hub point is wired as a single frequency translator. What comes in on E goes out on F. Again several advantages and disadvantages exist. First the disadvantages. Each repeater has to have a link radio installed. And the hub has to be built.

The advantages are that the link transceivers at the repeaters are on another band so interference is generally limited. The hub is simpler and less expensive. As well, because of the hub, linking can occur over a much greater distance because Repeater 1 and Repeater 2 do not have to be within line of site of each other. The new link site set up by the Monto Radio Club at Coominalga is a hub for this configuration.

## Standardised Link Control

The five linking methods are Wired, In-Band, Out-of-Band, In-Band Hub and Out-of-Band Hub.

These five methods may be mixed and

matched to form any link as required. At present only a few repeaters are linked in Australia. Little is required for access to a link — usually carrier only, a sub-audible tone or DTMF tones.

In time the networks are sure to grow to be as large as some of the overseas linking systems. Standardised access would then be necessary. This has already been proposed by the WIA in a forward looking attempt to offer a degree of national co-ordination. Generally, for all of the methods shown above, a control unit would need to be connected between the link radio and the repeater.

Various units have been described in publications and may be as simple as a tone decoder to the more complex electronic switches using microprocessors.

I hope this article has taken some of the mystery out of repeater linking.

Will Scott VK4XP  
PO Box 826 Gladstone QLD 4680

ar

# Space Radio Handbook

by John Branegan GM4IHJ

an RSGB publication

This book is a worthy addition to the already well known RSGB publications, and is cast very much in the same mould. It is authoritative, complete and easy to read.

The author successfully draws together the wide range of topics related to space science and the depth of coverage is more than adequate for the amateur experimenter. His treatment of the ionosphere is one of the best I've read. He spends considerable time detailing the way in which the ionosphere affects VHF/UHF and microwave communication, an area often neglected in other texts, but vitally important to satellite users. There are formulae for those who need them, but the bulk of explanatory material is handled using computer-generated graphics and tables. The book is well indexed and has a useful glossary of terms and addresses.

There are 13 chapters:

## Space Radio Physics 1 & 2:

The ionosphere and near space physical conditions affecting HF, VHF, UHF and microwave propagation.

## Types of Satellites:

Covers just about every known kind of

artificial earth satellite from amateur Oscars to killer satellites.

## Orbits and Tracking:

A very comprehensive, easy to follow view of orbital geometry with an historical perspective on Johannes Kepler. Covers all the usual orbits along with problems posed by the Van Allen belt. An interesting account of some rather unusual deep space orbits.

## Satellite Radio Reception:

A practical discussion of problems and solutions associated with reception of weak signals from space.

## Amateur Radio Satellites:

Historical and technical account of all amateur radio satellites from Oscar-1 to phase-3 and the present generation of digital store and forward micro-satellites.

## Weather and Experimental Satellites

Good general explanation of the reception of weather satellite pictures.

## Experiments in Space Radio:

The longest and possibly most interesting chapter (42 pages). It details many experiments for the amateur or school science teacher. The book is worth reading for this chapter alone.

## Man in Space:

A detailed look at the manned space programs of USA and LONGER with a special emphasis on their communication problems and solutions.

## Space Radio Computing:

A comprehensive summary of the computer's role in space communications. Tracking, telemetry, command and control, digital comms etc.

## Meteors, Comets, Moons and Asteroids:

Discusses the effect of these bodies on the ionosphere and space communications. Good coverage of moon-bounce problems.

## Amateur Radio Astronomy:

Practical radio astronomy suitable for the amateur experimenter.

## Future of Amateur Radio in Space:

A bit of crystal-ball gazing.

To Summarise:

The book answers many questions for newcomer and experienced amateur alike. It covers a wide and complex field in a very readable and informative way, without resorting to jargon or higher mathematics. It's a good general text on space science and will find a place in secondary school libraries as well as on the experimenter's bookshelf.

Reviewed by: Bill Magnusson  
VK3JT

ar

## Murphy's Corner

### Random Radiators

August AR 1992, Page 16

### Extended Double

### ZEPP Antenna

Well Murph ol' son! you really let your hair down this time with an all time blunder, you omitted not one but TWO drawings for the Extended Double ZEPP antenna. To our columnists, Ron VK3AFW and Ron VK3OM, we extend our apologies, and to our readers we extend our regrets for the inconvenience caused.

The omitted drawings now reproduced are self explanatory.

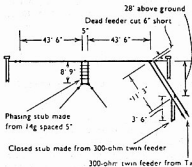


Figure 1 — Dimensions of the Extended Double ZEPP for 14 MHz, as used at G3AEN.

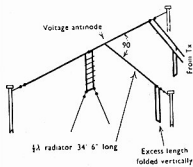


Figure 2 — The composite omnidirectional aerial eventually derived by G3AEN from his Extended Double ZEPP as described in the article.

### RAAF Radar — Fifty Years Old — 1992

August AR 1992, Page 22

Third column — VK3FRA represents the Fiftieth Radar Anniversary (not Fifth as stated on the first line of the third paragraph).

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## How's DX?

Stephen Pall VK2PS PO Box 93 Dural 2158

These days one quite often hears the complaint that propagation has not been good lately. The fact is, solar Cycle 22 is now on the decline, and has been so since the end of the year 1989. Looking at some charts the other day the prediction of smoothed sunspot numbers seems to reach the lowest level around September 1996, only four years away. Do you remember October 1986? Cycle 22 started then and reached its peak late 1989 early 1990. It was a rapid rise of only about four years or so; now we are already on the downward slope for the next four to five years. The peak of the next cycle, being No 23, will be sometime around the turn of the century in the year 2000 according to the predictions, and it will not be as high as Cycle 22. It seems to me its pattern will be similar to that of Cycle 20 in 1970, when the smoothed maximum sunspot number reached around the 115 mark.

This gloomy prediction will cause the eager DXer to upgrade his/her knowledge on propagation. We have to use as many sources of information as possible to catch those "good openings". One of these sources of information is the Recorded Solar Geophysical Message provided by IPS Radio and Space Services in Sydney. If you have never used this service before, try it now. Phone Sydney (02) 414 8330 and hear the information which might be beneficial to you.

### The City of Sydney Sesquicentenary — VI150SYD

This special event station, operated by various individual VK2 amateurs and VK2 radio clubs on behalf of the VK2 Division of the WIA, has been very active since 1 January this year. Thousands of QSOs were made with about (so far) 82 DXCC countries in the CW, SSB, FM and RTTY modes. There was activity from the Sydney Maritime Museum from the deck of "James Craig", an old iron barque undergoing restoration, and the station also took part in the May CQ WPX CW Contest. ANARTS and the RNARS used the callsign already.

Sydney Town was known since 1788 as a military settlement, but matured into a city as proclaimed in 1842. Today, Sydney

is a sprawling metropolis of almost four million people on an area of 4075 sq km, and welcomes more than three-and-a-half million visitors each year. The VI150SYD station will reply to all QSL cards received, direct if you enclose a SASE, or via the Bureau if you prefer the route. The attractive colour fold-out QSL card of this special event station carries a message of goodwill from the Lord Mayor of Sydney to the world amateurs, together with a greeting from the VK2 Division of the WIA.

If you are an amateur with a VK2 callsign, or an amateur radio club affiliated with the VK2 Division of the WIA, and you wish to operate this special event station from your own QTH, please apply in writing to WIA, VK2 Division, PO Box 1066, Parramatta, NSW 2124.

### Bangladesh — S2

Radio amateurs who followed the development of amateur radio in Bangladesh will be pleased to hear that Saif Shahid S21A, President of the Bangladesh Amateur Radio League, was reported to be on air. He was heard on the 15 and 20 metre bands. Eric WZ6C, who until now operat-

ed without written permission, hopes to be on air soon with official approval and corresponding callsign. It was also reported by the DX Bulletin that Ray Gerard G3NOM is in Bangladesh until 8 August and was issued with the licence S2/G3NOM. It is also rumoured that even S2IU, which is the official call of the Bangladesh Telecommunication Authority, will be on the air soon.

I will not be at all surprised if, by the time you read this in September, another prominent DXer might pop up on the bands with a Bangladesh callsign. QSL routes: S21A goes to W4FRU John Parrott, PO Box 5127, Suffolk, VA 23435, USA. S2IU goes to JA1UT Yoshi Hayashi, 4-20-2, Nishi-Gotanda, Shinagawa, Tokyo, Japan. S2/G3NOM goes to GOCMM, J Bell, 28 Stiles Av, Marple, Stockport, Greater Manchester SK6 6LR, UK. Incidentally, I had a long discussion with the S2/HA5BUS crew whilst it was in Sydney. From 1 April 1992, when they received their permission to operate for three weeks, they made a total of 23,546 QSOs as follows: SSB — 14016, CW — 8905, RTTY — 580. Out of these there were 9449 European, 7216 USA, 4183 Japanese and 2698 contacts with other DX countries. The number of QSOs averaged 1121 per day.

### Croatia — 9A

No doubt you have heard quite a lot of "new" prefixes lately. The former YU2, YT2, 4N2 stations are now using a new prefix 9A. However, I was not able yet to discover whether this new prefix has been issued by the ITU or not. According to various sources, the new callsign structure is as



The much sought after VI150SYD QSL card.

follows: 9A2-9A7 personal station stations, 9A0-9A1 club stations. The YU2 stations are signing 9A2, the YT2 stations are signing 9A3, and the 4N2 stations are signing 9A4. However, so far, all these new prefixes do not count as new DXCC countries — yet! New QSL routes: 9A2AJ via YU2AJ, 9A2MP via YU2MP, 9A3TR via YU2HDE, 9A2PM via KA9WON, and 9A4AA via 4N2AA.

## Mt Athos — SV2IA

The controversy created by Baldur's DJ6SI operation from Mt Athos (see "AR" Feb '92) does not seem to settle down. Whilst overseas, I had the opportunity to read the rules and regulations concerning the operation of amateur radio stations by radio amateurs of the European Economic Community (EEC) member countries in Greece. Under the heading 1 Licensing, paragraph 1.6 it says, "The operation of a radio amateur station within the District of Athos (Mt Athos), in addition to above conditions (note: other conditions refer to the general rules governing the CEPT licence agreement) is subject to the official written permission of the local administration of this district."

It comes then as no surprise that the ARRL news release dated 19 March 1992 spelled out in more detail the conditions under which DX operations on Mt Athos will be accepted for DXCC purposes. Basically, it says that the operator must have a valid licence issued by or recognised under treaty (ie CEPT?) by the Government of Greece. Furthermore, the prospective DXer must have written permission to enter the Mt Athos region, and must have written permission to transmit from Mt Athos. All these permissions must be issued by the Superiors of the Common Congregation of the 20 Holy Monasteries of Mt Athos. DXCC accreditation will be given only to those who have satisfied all these conditions. The press release does not say that this new ruling of the ARRL is retroactive, therefore it can be assumed it applies only to future DXpeditions. The future of DXing from Mt Athos is not very promising. Monk Apollo SV2ASP/A, the only resident amateur in that community, has been off the air as a protest against the DJ6SI operation.

He has written more than one letter to the ARRL DXCC Desk, and the latest lengthy letter was reproduced, apparently verbatim, in The DX Bulletin, which is published in California, USA. In this letter, Monk Apollo says, among other things, "The Holy Community, with which I'm in continuing contact, is very irritated and disappointed with the handling of the problem and informed me it had decided in the future it will not permit Greeks or foreigners

to make any transmissions again from Mt Athos, except the monks of Mt Athos." Monk Apollo, however, closes his letter with the following remark: "If you don't cancel the transmission of DJ6SI, you will never hear me on the air. Thx. With great sorrow. Monk Apollo"

As I said in my February '92 notes, the DXCC Committee has got a problem on its hands. It seems to me this controversial matter has developed into an "amateur radio diplomatic stalemate". What now?

## Pacific Wanderings

The northern hemisphere summer holidays have produced again a healthy number of travelling amateurs in our region. Here is a short list of some of the participants.

Peter DK6NP used the call A35NP from 13-18 August; later he was heard as 5W1NP and as 3D2NP. ZK1AL was Carlo I4ALU from the Cook Islands, both south and north. Bob ZL4DP was also active as ZK1RS from Penrhyn (North Cook) island. ZK1HJ is Harry G3MCN who was in Raratonga. Members of the Kyoto amateur radio club were active in August as: T30IG (JH3FJG), T30TX (JH3TXR), T30IL (JF3PLF), T30KT (J13DLI) and T30IM (J13NTS). The same operators will use the call signs 3D2IG, 3D2TX, 3D2IL, 3DWKT and 3D2IM whilst in Fiji. QSL for the Kyoto hams goes to JA3OIN. H44GC was active for a few days, commemorating the 50th anniversary of the Battle of Guadalcanal. QSL to KU9C.

## HA5BUS in Australia — VK5BUS

The Hungarian Globe-Ex-Pedition — HA5BUS (see May '92 issue of AR) which was active from Iran (EP), India (VU) and Bangladesh (S2), has arrived in Sydney. The expedition originally planned to travel to Singapore down on the Malay Peninsula and then to Australia. Unfortunately the hostilities which plague Myanmar, made it impossible to travel by road where a 12-metre-long bus would have been an excellent target for stray bullets. The Hungarian boys, Imre HA5HO, Istvan HG5CHI and Gabor HG5BK, decided to ship the bus from Calcutta via Singapore to Sydney. The original plan to land in Perth (VK6) and cross the Nullabor from west to east had to be abandoned because of shipping schedules and routes. The specially equipped bus has three sleeping berths, fully equipped kitchen, bathroom with shower and WC, storeroom, bread-making facilities, washing machine, refrigerator, a 3.6 kW generator, and an air-conditioning system designed for the tropics.

The bus has, of course, an amateur radio station on board with ICOM and Yaesu equipment and two computers. They have a nine-metre-high extendable antenna mast on the bus, and also a 18AVT/WB vertical and a three-el four-band Yagi and various dipoles. The bus was offloaded from the ship on 20 July. The group has established headquarters in one of the Sydney seashore suburbs on Mistral Point Lurline Bay. The site is opposite a public reserve with breathtaking views of the Pacific Ocean, and with a good take-off across the Pacific.



The "crew" of VK5BUS. From left are Imre HA5HO, Gabor HG5BK and Istvan HG5CHI.

ic. The first QSO was on 23 July at 0500 UTC with a local VK2 amateur. The call-sign used is VK5BUS and they are very thankful to the Australian DoTC, which made this call-sign available to them. The frequencies used by the "BUS" are as follows: SSB 3775 (not in VK), 3795 (VK only), 7075, 14275, 21375 and 28575 kHz. CW: up 25 kHz from band edge, except on 7 MHz, where the frequency is 7025 kHz. RTTY: 7075, 14085 and 21085 kHz.

During the first week in Sydney they had equipment problems which were solved with the co-operation and generous support of the Melbourne headquarters of ICOM Australia. The "BUS" will stay in Australia for 2-3 months, and besides Sydney, will be active from Melbourne (VK3), Adelaide (VK5), Canberra (VK1) and Brisbane (VK4) using the call-sign VK5BUS. The unexpected change of plans and boat travel for the bus (Calcutta-Singapore-Sydney) has put an extraordinary strain on the finances of the expedition, not to mention the fact that one of its main sponsors in Budapest, Hungary, filed for bankruptcy, which completely stopped the flow of funds to it. So, if you are one of those amateurs who might have some spare cash (after having contributed this year to so many DXpedition funds) your financial support will be welcomed by the members of the expedition. Please send your donation to: Magyar Kulkereskedelmi Bank (Hungarian Bank of External Trade) Account, Globex 1037 Orban Bl. Account No 401-6782-844-99, Budapest, Hungary. The QSL address is unchanged: Globe Foundation, PO 49, 1311, Budapest, Hungary.

## Future DX Activity

- A number of special event stations will be active from Canada in the near future. VD325E will be used by Elma Township Public School from 17-30 October. The call VC350A will commemorate the 50th anniversary of the Listowel Squadron of the Royal Canadian Air Cadets and will be used from 17-30 November. The unusual call-sign of VA3200M — this call would interest our own licensing officials — will celebrate the bicentennial of Sir Alexander Mackenzie's crossing of North America by land. These celebrations are part of a heritage program and other community events, and the call will be on air from 1-14 September. QSLs for all the above special event stations are to be sent to VE3LSS.
- TJ1IJ is active in Benin. QSL to DJ5JO.
- XU/DJ4OF is Manfred, who will be in Kampuchea for nine months. He was heard on 14014 at 1400 UTC.



VK5BUS in Sydney ready for QSOs, and the DX pile up.

- A group of Italian amateurs will be active from Tanzania with the following call-signs: 5H3NU and 5H1TY during August and early September.
  - Cocos Island — the one in the Pacific Ocean — will be activated by a group of operators using the call-sign T19JJP from 1-11 November.
- Interesting QSOs and QSL Information. Note: call-sign, name, frequency, mode, UTC, month.
- ZA1A-14195-SSB-0529-July. QSL to OH2BBF (see Aug '92 AR).
  - HG92HQ-Zoli-14167-SSB-0719-July. QSL to HA6KNB Radio Club Salgotarjan, PO Box 115, H3101 Salgotarjan, Hungary.
  - ZK1RS-Bob-14190-SSB-1055-July. QSL to ZL4DO Robert J Sutton, 4A Crompton Rd, Massey, Auckland 1208 NZ.
  - YJ0AR-Roy-21195-SSB-0024-July. QSL to VE7TG, Roy Vernon Parett, 1708 Carnegie Cres, Victoria, BC, V8N 1P3, Canada.
  - VI4FOW-Ted-14226-SSB-0317-Aug. QSL to PO Box 829, Hervey Bay, Qld 4655.
  - GB0WSS-Graham-14175-SSB-0620-July. QSL via Bureau.
  - ED5VAL-14202-SSB-0451-July. QSL via EA4KK via Bureau.
  - ZK1XR-Dick-14222-SSB-0625-July. QSL to N7NKG.
  - TM9R-14222-SSB-0715-July. QSL to F9RM.

## From here and there and everywhere

The European CEPT licence agreement was mentioned elsewhere in this issue. It means that if you have a valid amateur radio licence from any of the countries which signed the agreement, you can operate in any of the other countries which are party

to this agreement, provided you use the prefix of the country in which you are located before your own home call. This could mean that you might use five different prefixes in one day if you are travelling by car in central Europe.

The countries which are party to this agreement are: Belgium, Denmark, Germany, Finland, France (and Territories), Greece (SY/Mt Athos requires written permission), Italy, Lichtenstein, Luxembourg, Monaco, Holland, Norway, Austria, Sweden, Switzerland, Spain, Czechoslovakia and Hungary.

- Selim OE6EEG has advised me that he is QSL manager for the following stations: HZ1MM, HZ1TA, 7Z1IS, A61AA, A71AL, SUIER, SUIRM, SUIRR, SUIIS, 9K2SH, 9K2YA (till Jan '93), and can help in obtaining cards from Y11BGD. Selim also points out that due to high postal charges from Austria, one IRC or one \$US is not quite enough for a first class airmail letter sent to VK/ZL.
- The RSGB HF and IOTA Convention will be held at Old Windsor (close to London's Heathrow airport) on 26 and 27 September 1992. For further details contact G3PJT (+0223 263137), or for accommodation G3KMA (+0276 858224).
- The operation on Glorioso Island in May by Baldr DJ6SI and his colleagues produced 2000 RTTY, 5000 SSB and 7000 CW contacts. According to CEPT rules they used their own call-signs DJ6SI (CW), DJ8CR (SSB), DJ3OS (RTTY) and DG4FCD (SAT) with the FR prefix.
- The 1992 FOOCI Clipperton Island operation has been accredited by the DXCC.
- Bill Kennerman K5FUV is the new man behind the DXCC desk at ARRL headquarters after the Don Search retirement.



- The special event station VI4FOW, "The Whale Festival" activated by the Hervey Bay Amateur Radio Club in Queensland, came on air as planned on 1 August 1992. On that very same day the Mayor of the City of Hervey Bay officially opened the amateur radio club. The opening ceremony was also attended by many distinguished visitors, among them the local member of parliament, Mr N G Dunn.
- According to K14RU Bob, a Californian amateur who interfered with other amateur transmissions especially on net operations, and made a general nuisance of himself on a particular frequency, was dealt with by the US courts, and was fined \$8000 for "wilful interference".
- EP2HZ/portable was heard in July on 14243 at 0630 when he was located on the shores of the Caspian Sea.
- Heard Bing 3D2XV saying he is coming home from Rotuma on 1 August, and is homesick for a "juicy steak". He decided not to go to Tuvulu as the airfare was very expensive.

- Expect the special event station VK4RUM to be on the air soon. It will be activated by the Bundaberg Radio Experimenters Group. Contact VK4FC for further information.
- If you heard TV9CEE, that was a group of French radio amateurs taking part in a European Mt Blanc expedition from camp 1 at 3600 metres height. QSL to FIMXHX.
- Jim VK9NS, operating as WR1Z/KH9, made over 12,000 contacts during his short visit, including several hundred RTTY contacts.

### QSLs Received

Note: W=week; M=month; Y=year; FM=from; MGR=manager call; OP=operator call.

Direct QSLs received: ZK2KK, 3D2XR, FW/SM/7PKK, KH8/SM7PKK, all the foregoing from MGR SM7PKK 1Y 6M. VK9YJ (6M FM OP VK3AWY), ZAORS (5M FM MGR HA6NF), ZAIHA (4W FM OP), ZAIZXV (2M FM MGR F6EXV).

Bureau cards received: HC2HVE (8M FM OP), HC2GZA (4M FM OP), YJ0AHM (2Y FM MGR DL5UF), ZF2ME/ZF8 (1Y 10M FM MGR WA2ICE), 4K4POL (18M FM MGR UA0KCL), V631J (18M FM MGR JA3OIN), 7J1ADJ/JD1 (18M FM MGR KBIB), VPSVDK (13M FM MGR NY8E), OA4AFP (13M FM OP), 6Y5DA (2Y FM MGR VE4JK), LU5DBJ (14M FM OP), VQ9PM (2Y 2M FM OP), A35ML (2Y 5M FM OP OH4ML), OH4ML/H44 (2Y 5M FM OP).

### Thank you

Lots of thanks to the few who assisted me, and who remembered to send in reports and news, especially to VK2BBE, VK4MZ, VK4OH, VK5WO, K14RU, OE6EEG, HA5HO, VK5BUS, and the following publications: QRZ DX, The DX Bulletin and the DX News Sheet.

Good DX and 73

ar

## Education Notes

Brenda M Edmonds VK3KT — WIA Federal Education Co-ordinator  
PO Box 445, Blackburn 3130.

As stated last month, I have been looking at some of the RSGB publications for use by newcomers to the hobby. The establishment of a Novice licence in the UK has apparently triggered the production of a range of more basic texts than the familiar standard tomes.

The RSGB has also recently launched an initiative, entitled Project YEAR (Youth into Electronics via Amateur Radio), to encourage interest in the hobby, and has produced a training course suitable for use by any newcomer. Under the terms of the Novice licence, a candidate must attend an approved course of about 30 hours before attempting the Novice examinations. The course includes a number of exercises which must be assessed by the instructor. The usual group is a maximum of four students, of any age, with a volunteer tutor.

"Amateur Radio for Beginners, Book 3, The Novice Licence", forms part of this training scheme. It is an A4 size booklet of about 90-100 pages, the first 14 of which are an introduction to the course, an explanation of Amateur Radio, hints to help pass the examinations, and instructions for building an MF receiver. The rest of the book (pages not numbered) comprises the 32 worksheets, each labelled "H" or "C" meaning to be done at home or in class. The

"H" exercises include learning the colour code, the Q code, CW abbreviations and Morse code (the EISH/TMO method is used), as well as reading about propagation, the Electromagnetic spectrum and some simple theory. The "C" exercises include practice in soldering, using meters, fitting plugs to cables and some construction projects as well as practice contacts and log-keeping.

The book is spiral bound, to lie flat on a table when open, with the backs of the Worksheets left blank for notes. There is a strong emphasis throughout on care and safety, and frequent advice to ask for help with anything not understood. The instructions are generally clear and very detailed. For example, it takes almost two full pages to cover fitting a three-pin plug to three-core lead. (Is this a Novice exercise? I have reservations.)

Overall, there is not a lot of "radio theory" in the book, certainly not enough for an Australian beginner to consider it as sufficient background for attempting the NAOCOP examinations, but it is a useful introduction, and explains a lot of the Amateur "folklore" and tradition which are often omitted from the standard texts. The language is perhaps a bit complex for entry level, but the explanations are simple,

with emphasis on establishing good operating practices. Diagrams are well labelled and clear.

The book could well be used as the basis for a beginners course or a school unit. My inspection copy from Stewart Electronics.

The idea of some practical training before a licence is granted has been mooted in Australia for years. It seems an excellent idea, and appears to be working in the UK, but would be harder to organise in this sparsely populated country. Perhaps some of the clubs could run "Introduction evenings" for their class members using the exercises listed here. I am sure many of the students would appreciate this.

Two more points, the UK Novice licence comes in two grades, A (with 5 wpm CW, gives HF privileges) and B (no CW, VHF and UHF only). And a UK Novice licence is free to those under 21!

ar

**Support the  
WIA in order to protect  
amateur radio  
frequencies**

# AMSAT Australia

Bill Magnusson VK3JT 359 Williamstown Rd Yarraville VIC 3013

Packet: VK3JT @ VK3BBS

## National co-ordinator

Graham Ratcliff VK5AGR

Packet: VK5AGR @ VK5WI

Please take note of the AMSAT information nets:

## AMSAT Australia net:

Control station VK5AGR

Check-ins commence at 0945z on Sunday nights

Bulletin commences at 1000z

Frequencies:

Primary 7.064 MHz, plus/minus 5 kHz.

Secondary 3.685 MHz.

AMSAT South West Pacific net:

2200z Saturday on 14.282 MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA divisional broadcasts for regular up to date AMSAT information.

## AMSAT Australia newsletter and software service:

Satellite users whether experienced or newcomers will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$25 for Australia, \$30 for New Zealand and \$35 for other countries by AIR MAIL.

It is payable to AMSAT Aust. addressed as follows: AMSAT Australia, GPO Box 2141, Adelaide SA 5001.

The newsletter provides up to date information on all current and planned amateur radio satellite activities. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

## AO-21 news:

The FM repeater on this satellite is up and running well. Many stations are heard daily with the passes coming over VK in the late morning to early afternoon and again in the late night and wee small hours.

If you have a well set up station and can track the satellite and hit it with a bit of ERP, you should get a good signal through. Be careful though. It was announced at the recent AMSAT-UK colloquium that the FM repeater has an attenuator which automatically switches in to cope with very strong uplink signals. If on the other hand you are using a vertical or some other omni-

directional antenna with 10-20 watts of FM you will have trouble getting in. Downlink signals are very strong and may be received on an all sky antenna. The CW beacon is on a nominal frequency of 145.818 MHz, while the FM repeater has an uplink on 435.016 MHz and a downlink on 145.987 MHz. Doppler shift does not appear to be much of a problem. FM is a fairly forgiving mode. If however you have trouble getting into the satellite adjust your uplink frequency to compensate for doppler shift. At present the downlink is operating to a 10 minute cycle. Beginning on each 10 minute count the repeater is operational for 9 minutes. It then switches to telemetry for one minute during which time the repeater is not available. Has anyone decoded the telemetry yet? If so, I'd like some details. One potential problem with this satellite is that 145.987 MHz is fairly close to the top of the satellite sub-band. Strong local stations operating on 146 MHz can be a worry. It doesn't happen often but my experience has been that if you use a proper approach a compromise can be reached. They are usually unaware of the problem and quite prepared to stop and listen for the satellite themselves for the duration of the pass. This doesn't always work and on one occasion I was told "Serves them right if they put a satellite on OUR frequency." Ah well, maybe my approach isn't as smooth as it used to be.

## OSCAR-13 and the DXer:

Conditions are becoming more favourable for VHF/UHF DXers to take advantage of operation through OSCAR-13. This satellite has "turned the corner" as it were and is now heading for the southern hemisphere albeit slowly. What this means is that the satellite is spending more time in our sky at LOW elevations and greater distances from earth. Great for the DXer with high gain horizontally aimed beams on 2 metres and 70 cm. At the time of writing we are seeing 2 to 3 hours of this situation for several days followed by several days of perigee passes. Good contacts can be made into northern Europe and the western half of the North American continent using only 5 to 10 watts of uplink power into a horizontally pointed yagi. The present satellite attitude is giving squint angles

down to single figures for quite long periods during each such pass. OH5LK reported recently that he had worked a ZL station for the first time on OSCAR-13. That's not a bad haul when you think about it. Finland and New Zealand are just about on opposite sides of the globe. The attitude will have been changed by the time you read this and the conditions will not be so good for a month or two but by mid September we will again see squints down into single figures and excellent operating conditions into the northern hemisphere.

## More on OSCAR-13:

My heart sank recently when I read a packet message from James Miller G3RUH. He was reporting on a fairly critical condition which had developed on OSCAR-13 and the reasons for some rather urgent action. It appears that a decision was taken by the control stations to leave some transponder operations available during the time just before and during the most recent attitude change. This was done as a service to users rather than shut down all transponders for a time due to less than ideal sun angles. The situation became critical when after repeated requests to use the lowest uplink power possible, a few stations were turning their power UP as the transponder was forced into QRP mode. Some stations are reported as using in excess of 20 kW EIRP which despite the QRP mode was making their signals 10-20 dB over the beacon level. There really isn't any excuse for this sort of behaviour. It is very selfish. The reasons have been fully documented. It resulted in a potentially disastrous situation which was compounded by the fact that James was having trouble commanding the satellite when it was over the northern hemisphere because of American over-the-horizon radar blocking the uplink. It was left to Graham VK5AGR to issue the command sequences necessary to effect the attitude changes and our short visibility periods at the time only served to prolong the process. You can't blame the controllers if they decide to shut down transponders during critical periods. No doubt the same stations who ignored the requests last time will be the first to complain if the transponders are shut down for a short period next time. The next generation of transponders will have devices in them to make sure this type of behaviour only disadvantages the perpetrator. One can only wonder at human nature sometimes. I don't believe these instances are the result of ignorance and even if they are there is no excuse for not being well informed as volumes have been written on this topic since it first reared its ugly head on OSCAR-10 many years ago. VK/ZL stations can take a bow as they have always enjoyed a good reputation in this regard.

### Satellite gateways:

It was reported recently on UoSat-22 that there are now 33 satellite gateway stations feeding mail into the world wide packet BBS network. We are quite well served in this part of the world with six stations operating in Oceania. They are ZL2AMD in Napier, VK5ZK in Adelaide, VK8SO in Alice Springs, VK4BBS in Brisbane, VK3JAV in Marnoo and FO5LQ in Tahiti. More and more overseas mail is finding its way here through these gateways and it is possible to specifically route mail outwards through them. If you live within VHF packet range of one of these gateways why not try routing mail through them. Next month I'll devote a paragraph to this mode and explain the method of addressing etc.

### KITSAT-A:

As I write this copy the launch of the KITSAT-A satellite is scheduled for today. Let's wish it good luck and hope I can write a report of the successful launch next month.

### New G3RUH demodulator:

James Miller has produced a new improved 400 bps psk demodulator for OSCAR-13 telemetry. It is an updated version of his earlier units for OSCAR-10 and OSCAR-13 and requires NO adjustments after building. It will be available from James sometime in mid September. I'll keep an eye on OSCAR News from AMSAT-UK for details and pass them on. This demodulator will also work on the proposed phase 3D satellite telemetry beacon. **ar**

## Club Corner

### Geelong Radio Electronics Society

List of office bearers for 1992-1993

President	A Stevens	VK3EFO
Vice President	A Anderson	VK3VBG
Treasurer	J Powe	VK3BJP
Secretary	K Vriens	VK3AFI

#### General Committee

W Bond	VK3BWS
J Collins	VK3DKH
J Koopman	VK3VCK
R Lekic	VK3MHJ
R Tan	
V Verhoef	VK3VCG

#### Special Officers

Library Officer	R Lekic
Storeman	A Anderson
Assistant Storeman	R Jackson
Publicity Officer	K Vriens
Museum Officer	W Bond
Asst Mus Officer	R Jackson
Syllabus Officer	G McLennan
RF Officer	G McLennan
Education Officer	J Collins
Catering Officer	A Chalmers
Awards Officer	J Powe
Field Day Co-ord	J Koopman
Auditor	Mrs Collins

#### Additional Information

Location: Corner Breakwater Rd and Barwonheads Rd as per Melways Map 228 B11.

Postal Address: PO Box 962, Geelong 3220

Phones (052) 21 3658; (052) 43 6254  
Classes: free to members, AOCP, NAOCP  
Meeting nights: Thursday 20.00 hrs  
Clubnet on Monday night, 3.56 MHz at 20.00 hrs EAST.

City by the Bay award for SWL and licensed operators can be obtained by contacting five to 20 club members for the various levels of certificate. Contacts made during the Monday night net are accepted.

### Ballarat Amateur Radio Group Inc

At the Annual General Meeting of the Ballarat Amateur Radio Group held on 31 July the following officers were elected for 1992-1993:

President	Ian Robinson	VK3FD
Vice President	Cliff Bilston	VK3CCB
Secretary	Jim Wright	VK3CFB
Treasurer	Harry Hekkema	VK3KGL

The annual Hamvention will be held on 24 and 25 October, the venue Ballarat Bray Raceway.

**Jim Wright, Secretary BARG**

### Northern Corridor Radio Group VK6ANC

"HAMFEST 92" will be happening on Sunday, 1 November 1992 at NCRG Headquarters, Carine College of TAFE. Plans

are well in hand to make this the biggest Hamfest yet. A follow-up letter giving more details as they are finalised will be provided shortly.

We can announce that, as in past years, entry to the event will be absolutely free.

**Alek Petkovic VK6APK**  
for Hamfest Committee

**NCRG**

**PO Box 244**

**NORTH BEACH 6020**

### Moorabbin & District Radio Club

The following people were elected at the Annual General Meeting of the Moorabbin & District Radio Club Inc at its Annual General Meeting held on Friday 17 July 1992.

President	Keith Turner	VK3CWT
Vice-President	Trevor Armstrong	VK3MGD
Treasurer	Morrie Lyons	VK3BCC
Secretary	Vacant	
Committee	Denis Babore	VK3BGS
Members	Jerry Viscaal	VK3MQ
	Ken Millis	VK3TKR
	Andrew Bell	VK3WAB

The position of Secretary is currently vacant and will be either appointed from the elected committee or a Special General Meeting will have to be called to elect same. Until that decision is made, Keith Turner VK3CWT is acting as Secretary.

The following members were appointed to the positions listed below:

Station Officer	Keith Turner	VK3CWT
Components	Ray Fowler	VK3BHL
Awards Manager	Andrew Bell	VK3WAB
Newsletter	Denis Babore	VK3BGS
Publicity Officer	Allan Doble	VK3AMD
Librarian	Alistair Duff	VK3KAD
Valve Bank	Ken Bridger	VK3JII
Combined Clubs	Harold Hepburn	VK3AFQ
	Doug Richards	VK3CCY
Public Officer	Ken Millis	VK3KTR

**Allan Doble VK3AMD**

### Radio Amateurs Old Timers Club of South Australia

**Ray Deane VK5RK**  
35 Truro Avenue  
Kingswood SA 5062

The annual luncheon will be held at Marion Hotel, Marion Road, Mitchell Park, on Tuesday 27th October 1992, commencing at 12.00 noon.

A ladies luncheon will be arranged also at the same venue.

RSVP by 22nd October 1992 to either of John Allan VK5UL (tel 344 7465), or Ray Deane VK5RK (tel 271 5401), or Jack Townsend VK5HT (tel 295 2209).

Bus 243 stops in front of the hotel.

**ar**

# Knutshell Knowledge

Graham Thornton VK3IY PO Box 298 World Trade Centre Melbourne 300

I must apologise for the absence of these notes for the past few months, due to lack of abstracting activity. Hopefully, they will now continue uninterrupted — provided that readers want them, of course! It's rather a nice change just to have a column to consider, instead of the whole magazine, which is now in the capable hands of Bruce VK3UV.

If copies of complete articles are required, your Divisional library may be able to help; or perhaps some member of your club has copies.

## Amplifiers

### HF Linear

*A Solid State HF Linear Amp.* Mike Grierson G3TSO, RadCom Vol 68 No 1 Jan 1992 pp 33 — 35. il cct and photos. This article discusses in detail the assembly of one of a class of linear amplifier kits available by mail-order from the US. Several kits are available with up to 600 W output.

## Antennas

### Miscellaneous

*An Impedance Diagram for Transmission Lines.* Geoffrey Billington G3EAE, RadCom Vol 68 No 1 Jan 1992 pp 42 — 44. il diags. A simple graphical method is described whereby the impedance components can be found at any point on the line, if SWR and Zo are known.

### Product Review

*The Ventenna.* David Cassidy N1GPH, 73 issue #376 Jan 1992 p 32. il photo. A review is given of a cylindrical 2 m antenna which fits over a roof vent pipe. The finished result disguises the presence of an antenna; it looks just like a vent pipe. It is available for around \$40 from The Forbes Group, PO Box 445, Rocklin CA 95677.

## Audio

*Dolby Surround Sound Decoder.* Robert Priestley, EA Vol 54 No 1, Jan 1992 pp 72 — 79. il ccts, cmp, pcbs and photos. Details for the construction of this decoder are given. It takes advantage of the fact that Dolby surround information is usually present on most videos with high fidelity stereo sound tracks, as well as TV transmissions.

## Computers

### Miscellaneous

*The ROMloader, an EPROM Emulator* — I. Peter Baxter, EA Vol 54 No 1 Jan 1992 pp 104 — 111. il cct, cmp, diags, pcbs and photos.

A design is described for a RAM which can be used as a substitute for an EPROM when developing dedicated microprocessor programs.

### Software

*Kantronics All-Mode (KAM) Software Version 4.0 Upgrade and Host Master II Terminal Software.* (Product Review) Larry Wolfgang WR1B, QST Vol LXXVI No 1 Jan 1992 pp 81 — 82. A review is given of these combined packet and digital programs.

*Program Teaches the Basics of "C".* (Product Review) Jim Rowe, EA Vol 54 No 1 Jan 1992 pp 112 — 114. il photo. A review is given of the Waite Group's "Master C" which is a tutorial program designed to develop proficiency with this language.

### Electronic Devices

*Automatic Watering System.* Rolf Sommerhalder, EA Vol 54 No 1 Jan 1992 p 71. il cct. An irrigation control system is described, which allows automatic daily watering of up to 90 minutes duration. This can be arranged to be at dawn in winter or dusk in summer, activated by an LDR.

### Narrow Band Modes

*A New DSP for Packet.* John Albert WA9FVP, QEX #119 Jan 1992 pp 3 — 5. il diags and photo. A general overview is given of the applications of Texas Instruments TMS320C25 digital processing chip. The device can replace analogue filters, FSK demodulators or tone encoders. It can also be used as a digital audio filter for CW, a digital signal analyser and a digital audio oscilloscope.

### Propagation

*Maxwell Without Tears.* H Paul Shuch N6TX, QEX #119 Jan 1992 pp 6 — 10. il graphs. A simplified overview is given of the application of Maxwell's equations to radio propagation. The discussion is preceded by a simplified introduction to calculus.

*Solar Terrestrial Indices and HF Radio Propagation.* Paul Dunphy VE1PMD, QSTVE Jan 1992 pp 3 — 4. A general dissertation is given on the causes of disturbance to HF propagation. The indices (indexes?) used to measure various effects, and their significance to HF propagation, are described in detail.

## Power Supplies

### Battery Chargers

*The FET Charge Controller.* Michael Bryce WB8VGE, QST Vol LXXVI No 1 Jan 1992 pp 45 — 50. il ccts and photo. A switching FET regulator (30 A) is described, which controls the charge of a battery from a solar photo-Voltaic panel. Use of this device avoids overcharging, and it closes the system down during darkness. The regulator may also be used with other power sources.

### Miscellaneous

*Low Voltage Cut-out for Cars and Boats.* Rob Evans, EA Vol 54 No 1 Jan 1992 pp 82 — 86. il ccts, cmp, diags, pcb and photos. Two comparators monitor battery Voltage, and energise a relay via a 555 used as a flip flop. If the battery Voltage drops below a pre-set figure, the load is disconnected. A choice is offered for manual or automatic reset. The device avoids engine starting problems with a discharged battery.

*Safety Power Breaker for the Test Bench.* David McLanahan WA1FHB, 73 issue #376 Jan 1992 pp 18 and 20. il cct. A double pole AC relay supplies power to the test bench. It is energised by momentary action of a normally-open pushbutton, and latched on via a series of normally-closed pushbuttons connected to the output. Brief interruption of any of the latching switches causes the relay to release until re-set.

*240 V Power Relay.* Peter Murtagh, EA Vol 54 No 1 Jan 1992 pp 92 — 95. il cct, cmp, diags, pcb and photos. A load current drawn from a "master" AC socket actuates other equipment connected to a "slave" socket. A Voltage drop across three reverse connected diode pairs in the master active line triggers a triac in the slave circuit.

## Receivers

*A Receiver Spectral Display Using DSP.* Bill de Carle VE2IQ, QST Vol LXVI No 1 Jan 1992 pp 23 — 29. il ccts, graphs and photos. An interface is described which allows an IBM compatible computer, with suitable graphic screen, to act as an audio spectrum analyser for receiver output. A Sigma-Delta modulator provides a digital output corresponding to analogue sample Voltages. The necessary Fourier transformation is conducted by software, which is available from the author.

## Technology

**Automotive Engine Control** — 2. Tony Mercer, EA Vol 54 No 1 Jan 1992 pp 46 - 50. il ccts, diag and graphs. An overview is given of the sensing transducers and associated circuitry used to control modern automotive engines. Sensing and control of the requisite air/fuel ratio is dealt with in some detail.

**The Flexible RC Circuit.** Peter Phillips, EA Vol 54 No 1 Jan 1992 pp 96 - 99, 119. il ccts, diag and graphs. An elementary discussion is presented on the application of RC circuits to filters and their effect on frequency response.

**Tristate Buffer as OR Gate.** C. Shankar, EA Vol 54 No 1 Jan 1992 p 70. il cct. A circuit describes the application of a gate on 74LS125 tristate as an OR gate.

**Use Those Surplus Meters.** J. Frank Brumbaugh KB4ZGC, 73 issue #376 Jan 1992 pp 42 - 45. il ccts. A dissertation is given on the techniques for determining the characteristics of surplus meters, together with directions to change the value of shunts or multipliers. A description is given of an expanded scale Voltmeter using a zener diode.

## Test Equipment

### Field Strength Meters

**A Field-Strength Meter with Decibel Display.** Ralph Fowler N6YC, QST Vol LXXXVI No 1 Jan 1992 pp 33 - 37. il ccts and photos. An instrument is described which provides an accurate readout of relative field strength over a 40 dB range, within the HF spectrum. Special diode compensation circuitry is used to achieve this. Four switchable ranges are used, and the calibration technique is described.

**The Dual-Combo Field-Strength and Source Dip Meter.** Martin Beck WB0ESV, 73 issue #376 Jan 1992 pp 8, 10, 12 and 14. il ccts, cmps, diag and photo. A combined project which produces a tuned field strength meter with amplification for HF and VHF, together with a dip meter for HF. The same plug-in coils are used for both devices, and the FSM meter movement also serves for the dip meter.

### Frequency Meters

**A Simple HF Absorption Wavemeter.** E. Chicken G3BIK, RadCom Vol 68 No 1 Jan 1992 pp 54 - 55. il ccts and diag. Details are given for the construction and calibration of an absorption wave meter covering the HF bands in four switched ranges.

### Function Generators

**Build a Function Generator.** J. Frank Brumbaugh KB4ZGC, 73 issue #376 Jan 1992 pp 28 and 30. il cct, cmp and pcb. A function generator is described which produces square, triangular and sine waves over a frequency range of 300 to 7500 Hz.

Positive and negative pulses are also generated. The circuit uses one IC and a single NPN transistor.

### Inductance Meters

**A Direct-Reading Linear Inductance Meter.** Arthur C Erdman W8VWX, 73 issue #376 Jan 1992 pp 38 and 40. il cct, cmp, graphs and pcb. A 5 V pulse is applied to a series LR circuit. The time taken for the Voltage across the inductor to decrease from 5 to 1.8 V is a linear function of inductance. A positive 5 V output of this duration is derived from the original square wave. A DVM measures the average Voltage of this output, which is linearly proportional to the time and thus the inductance. Values from 5 to 250  $\mu$ H can be measured with the circuit described.

### Miscellaneous

**An Improved Crystal Tester.** Larry G Ledford KA4J, 73 issue #376 Jan 1992 pp 22 and 26. il ccts, cmps and pcbs. A combined oscillator detector circuit tests crystals in fundamental mode. Oscillation is indicated by illumination of an LED.

**1 - 99 V DVM.** Julian Phillips, EA Vol 54 No 1 Jan 1992 p 70. il cct. A DVM with 10 M $\Omega$  input impedance is described. Its design is based on the use of a Voltage dependent oscillator and a counter.

## Transceivers

### Miscellaneous

**Budget Amateur Radio.** Alan Troy G4KRN, RadCom Vol 68 No 1 Jan 1992 p 46. The cost options of "getting on the air" with minimum expense are considered.

**Going Mobile** — Part 2. Steve Ford WB8IMY, QST Vol LXXXVI No 1 Jan 1992 pp 53 - 55. il cartoons and photos. This part

discusses the selection criteria for various types of VHF mobile antennas. Techniques for the reduction of interference problems are also dealt with.

### Product Reviews

**Ten-Tec Argonaut II and Delta II MF/HF Transceivers.** David Newkirk WJIZ, QST Vol LXXXVI No 1 Jan 1992 pp 77 - 81. il graphs and photo. A detailed laboratory report is given, with measurements, for these two transceivers. They differ only in respect to power output.

**The 200-Channel Standard C168A Handheld.** Gordon West WB6NOA, 73 issue #376 Jan 1992 pp 24 and 26. il photos. A review is given of this miniature 2 m handheld, manufactured by Standard Communications.

## Transmitters

**A Novice CW Transmitter for 3.5 MHz (2).** Steve Price G4BWE, RadCom Vol 68 No 1 Jan 1992 pp 48 - 52. il cct, cmp, diag and pcb. The construction details are given in this part.

### Glossary of Abbreviations

il	The article contains illustrations, a list of which follows.
cct	A circuit diagram
cmp	A component layout drawing
EA	Electronics Australia
diag	A mechanical drawing
pcb	A master drawing from which printed circuits may be produced
QSTVE	QST Canada
RadCom	Radio Communication
73	73 Amateur Radio Today

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**Have you advised the WIA Federal Office of your new Callsign? Use the form on the reverse side of the Amateur Radio address flysheet**

# VHF/UHF An Expanding World

Eric Jamieson VK5LP PO Box 169 Meningie SA 5264

All times are UTC

## Six Metre Beacons

Freq.	Call sign	Location	Grid square
50.000	GB3BUX	England	IO93
50.005	ZS2SIX	South Africa	KF25
50.006	PJ2/OH1ZAA	Neth. Antilles	
50.008	DX1HB	Philippines	PK04
50.009	JA2IGY	Japan	PM84
50.012	OZ4VM	Denmark	JO46
50.015	SZ2DH	Greece	KM27
50.015	V51VHF	Namibia	JG87
50.015	PJ4B	Bonaire	FK52
50.016	4N3SIX	Slovenia	JN76
50.016	JA6YBR	Japan	PM51
50.018	V51VHF	Namibia	JG87
50.019	P29BPL	Papua N.G.	QI30
50.020	GB3SIX	England	IO73
50.020	CX1CCC	Uruguay	
50.021	OZ7IGY	Denmark	JO55
50.022	FR5SIX	Reunion Is.	LG78
50.023	LX0SIX	Luxembourg	JN39
50.0245	ZP5AA	Paraguay	GG14
50.025	VY4AB	Venezuela	FK50
50.025	OH1SIX	Finland	KP11
50.025	6Y5RC	Jamaica	FK17
50.026	JA7ZMA	Japan	QM07
50.029	CT0WW	Portugal	IN61
50.0325	ZD8VHF	Ascension Island	II22
50.032	ZSSSIX	South Africa	KG50
50.033	LU8YYO	Argentina	FF50
50.035	ZB2VHF	Gibraltar	IM76
50.035	ZS3VHF	South Africa	JG87
50.035	V73AT	Marshall Is.	RJ38
50.039	FY7THF	French Guyana	GJ35
50.040	VO1ZA	Newfoundland	GN37
50.040	V51SIX	Athens	KM17
50.041	FO5DR	Tahiti	BH52
50.0415	9K2SIX	Kuwait	
50.042	GB3MCB	England	IO70
50.043	ZL3MHF	Aylesbury	RE66
50.044	JR7YAG	Okinawa	PL36
50.045	OX3VHF	Greenland	GP60
50.045	VY4ZZ	Venezuela	FK60
50.046	VK8RAS	Alice Springs	PG66
50.047	JA7YYL	Japan	QM08
50.048	TG4BFK	Guatemala	
50.049	JG1ZGW	Japan	
50.050	GB3NHQ	England	IO91
50.050	V57SIX	Canada	DN09
50.051	LA7SIX	Norway	JP99
50.0525	ZL3MHB	Greyhound	RE57
50.053	JA5FFJ	Japan	
50.053	VK3SIX	Hamilton	QF02
50.056	VK3VF	Darwin	PH57
50.057	VK7RSB	Hobart	QE37
50.057	TF3SIX	Iceland	HP94

50.060	GB3RMK	Scotland	IO77
50.060	PY2AA	Brazil	GG66
50.061	KH6HME	Hawaii	BK29
50.0625	GB3NGI	North Ireland	IO65
50.064	GB3LER	Shetland (GM)	IP90
50.064	WD7Z	Arizona	EL59
50.0655	GB3IOJ	Jersey	IN89
50.065	NB30/1	Rhode Island	FN41
50.066	VK6RPH	Perth	OF78
50.069	K6FV	Woodside	CM87
50.070	EA3VHF	Spain	JN01
50.073	KH6HI	Hawaii	BL01
50.073	ZS4SA	South Africa	KG33
50.075	V56SIX	Hong Kong	OL72
50.0775	VK4BRG	Sarria	G48
50.078	PT7BCN	Brazil	HI06
50.078	OD5SIX	Lebanon	KM73
50.079	TI2NA	Costa Rica	EJ79
50.080	HCRSIX	Galapagos Is.	EI59
50.080	KS6SIX	Sweden	JO57
50.082	VE1MUF	New Brunswick	FN66
50.082	HC6SIX	Galapagos Is.	EI59
50.085	9H1SIX	Malta	JM75
50.085	3D2FI	Fiji	
50.086	VE2STL	Quebec	FN46
50.0865	LU1MA	Argentina	FF87
50.090	KJ6BZ	Johnston Island	AK36
50.091	9L1US	Sierra Leone	IJ38
50.092	W5GTP	Louisiana USA	EM40
50.092	HC2FG/B	Ecuador	EI97
50.098	7Q7XX	Malawi	
50.100	5H1HK	Tanzania	
50.110	A61XL	United Arab Emir.	LL74
50.120	4S7EA	Sri Lanka	MJ96
50.314	FX4SIX	France	JN06
50.490	GI2ZGW	Tokyo	PM95
50.499	5B4CY	Cyprus	KM64
50.904	S21STB	South Africa	RF05
51.020	ZL1UHF	Nihotupa	RF73
51.030	ZL2MHF	Napier	RF80
52.510	ZL2MHB	Mount Climie	RE78
52.325	VK2RT	Newcastle	QF57
52.330	VK3RGL	Mount Anakie	QF22
52.345	VK4ABP	Longreach	QG26
52.370	VK7RST	Hobart	QE37
52.420	VK2RSY	Sydney	QF56
52.425	VK2RGL	Gunnedah	QF59
52.440	VK4RTL	Townsville	PH30
52.445	VK4RMB	MacKay	QG48
52.450	VK5VF	Mount Lofty	PF95
52.470	VK7RNT	Launceston	QE38

## Six metres

During July, the six metre band has been very quiet, again. There have been the occasional winter-time Es openings to VK2 and VK4 but little else.

Peter VK8ZLX in Alice Springs reports everything quiet there. He also said he was moving QTH to the northern side of town and would not be in a position to use his M' six metre antenna, at least for the time being. He will be confined to a low profile antenna, possibly down to a vertical! So the usual VK8ZLX S9+ signal is likely to be less potent in the future. Pity.

Also, I understand that the Alice Springs VK8RAS beacon on 50.046 is due to be upgraded courtesy of VK8RH in Darwin.

Of course, where all the big things have been happening for months is in the Northern Hemisphere, particularly in Europe, where they have been enjoying a particularly good summer Es period. Geoff GJ4ICD on Jersey Island, during June extended his country tally to 132 with seven new countries and a total of 546 grids. His present aim is 150 countries on six metres! Knowing Geoff and the propagation conditions presented to him, he is very likely to reach that target! Ted GAUPS also has a very presentable country tally of 121.

For June, apart from beacons heard, prefixes worked or heard in the UK and Jersey Island included OK, OI, SV, SZ, F, EA, 5B4, 7Q7, YU, OE, DL, ON, PA, 4Z7, LX, TA, SM, OZ, YO, LA, OD, 9H, CT, IS0, ZB, CU, PZ1, T7, ES, OH, ZC4, 4N3, 3Z4, EI, CN, 9H, UZ2, 9K2, VE1, VO1, K1, VE3, W3, SP, LY2, IS0, HB9 (xband), OY, FM5, LU, LZ, Z23, IT9. That's 53 countries!

Of special note: an incredible day on 22/6 via Es, with virtually the whole of Europe working to VE and W, with most signals S9. Geoff GJ4ICD said the band was literally on fire with Es in every direction, and working country after country with S9 signals, with some Ws at S9+40dB. Apparently the Es carried over to 144 MHz with many contacts made. If these conditions are repeated in the Southern Hemisphere in December, then VK stations could be in for a treat, with a possible widespread coverage of the Pacific areas. But I assure you we will not be working 53 countries in a month!

However, despite the above, the UK in general, seems to have missed out to a large extent on working the island nations in the Pacific and some adjacent areas. It appears they have not worked ZL, H44, FK, 3D2, 5W1, FO, KC6, V85, KH0, KH3, KH4, KH5, KH6, KH7, KH8, KL7, JT, JD1, FW, BY, C21, A35, HL, HK0, P29, T20, T30, T31, T32, T33, VK9L, VK9N, VK9W, YJ to bring some to mind. A good F2 opening from the UK to the Pacific area would certainly make some healthy additions to their present scores.

## Report from Europe:

### Poland

Five stations were granted a special six metre permit which allowed operation from 5 to 15 June inclusive. During that time they had almost 1000 contacts with more than 500 to the UK.

### Luxembourg.

A beacon LX0SIX should now be operating on 50.023 MHz running 5 watts to a horizontal dipole.

### Kuwait.

Don 9K2WR left in early June at the conclusion of his tour of duty. Bob 9K2ZR and Tom 9K2ZC have been very active. A station signing 9K2ZC was worked by some, but according to Bob 9K2ZR, the call sign does not exist!

### Spain.

Eighty stations have been granted permits to work on six metres from Spain, with a change of prefix to EH for working on that band and the first legal EH QSOs taking place on 10 July.

### New Republics.

G4UPS says the ITU has allocated call signs as follows:

Croatia, 9A followed by a figure 0 to 9 and then by the old suffix from the previous call sign e.g. YU2SB is now 9A2SB.

Slovenia, has been allocated S5 but the Slovenian PTT is trying to have the S5 call signs changed!

Bosnia and Serbia will eventually receive call signs, so in effect, there will be four new countries for the loss of one DXCC country — Yugoslavia.

### Poland.

Special six metre permits were activated from 20/7 to 31/8, using the SO, SN and SR prefixes. On 15/9 a meeting with the Polish PTT could result in a general allocation for operation on six metres.

### Albania.

A visiting OH dx-pedition activated ZA1A from 1/7 to 14/7.

Others to be opened up by dx-peditions were Russia UX1A from 5/7 to 10/7, Kaliningrad UZ2FWA from 20/6 to 28/6 and UA2F/DK2ZF from 5/7 to 15/7, Latvia when YL/ES9C operated from 17/7 to 19/7 and worked about 450 stations.

None of the above is much help to VK as the dates have expired and at this time of the year there seems little likelihood of us working Europe. However, they are mentioned to allow you to make notes in your little black book that some form of six metre operations has been permitted in those countries and this may lead to something more permanent. In the meantime, no one knows whether Europe may be worked again during the next two equinoxes! Don't write off six metres too soon.

It appears from the reports received from Ted G4UPS and Geoff GJ4ICD, they being the basis for this part of my notes, that

extensive use of beacons scattered all over Europe, plus the relative closeness of so many countries, forms part of the reasons why they are able to work so many stations/countries on a daily basis.

During June, they noted the following beacons: SV1SIX, ZB2VHF, 9H1SIX, EA3VHF, SZ2DH, OZ7IGY, 4N3SIX, 5B4CY, CT0WW, SK6SIX, OH1SIX, V51VHF, ZD8VHF, VO1ZA, OX3VHF, FY7VHF, plus the UK beacons. Also of interest is that the band is open for long periods, often 14 to 15 hours at a time. We in VK do occasionally have such long Es openings, but it happens so often in Europe because there are so many countries to work, thus, if the Es changes from one area to another, it simply means a new set of countries appear! The latest list from Ted G4UPS indicates 143 countries have been worked by UK stations to 20 July, but no one has worked them all.

### Ancient Six Metres!

Reading the Six News from the UK Six Metre Group, I was interested in a table prepared by Ken G4IGO which indicated the first known UK station to work a particular country on six metres and when the contact occurred. We tend to think that contacts have only occurred there since about 1986 but a number of much earlier contacts are listed.

For your interest they are: G6DH to F8ZF on 10/12/47, G5WB to LA7Y on 3/7/48, G6DH to MD5KW, 10/11/47, G5DB to OH2NY on 4/6/48, G6DH to PA0UN on 10/3/48, G5BM to SU7HF on 16/11/47, G5BY to VE1QZ on 6/11/47, G6DH to WIHDQ on 5/11/47, G5BY to ZS1P on 6/11/47 and G4LX to ZE2EJ on 1/1/58.

All the prefixes worked are current with the exception of MD5KW which is unknown to me — also, it is not listed in the ARRL DXCC deleted countries list. Any answers? ZE2 is now Z2 — Zimbabwe.

Six metre buffs will have already noted that the 1947/48 contacts were made during the peak of Cycle 18 and the lonely one of 1958 in Cycle 19.

### South Africa.

Again, by courtesy of Six News, Hal ZS6WB reports that they have had a very quiet period on six metres during 1992, with nothing over the east-west path, no VKs, JAs, South America or anything else. Hal said he was amazed how things could change from the good year of 1991 to the very poor year of 1992.

The only bright spot was a QSO in April with SW1KF while he was beaming over Europe! However, he did work UL7GCC and ES6QB which gave him 89 countries worked and 84 confirmed, with cards yet to come from SW1KF, 9K2, ES6, OD5 and UL7.

Hal says he has now worked 1522 different stations on six, just under 1400 of those outside Africa. Of the 1400 there were 54 JA, 30 Oceania, 16 other Asia, 26 North America, 35 South America, the balance in Europe.

He worked 363 UK stations, 224 in 1, 136 F, 126 PA and 106 DL. Hal concludes by saying... "Conditions have been so good in the past that we keep thinking that tomorrow there will be an opening just as good. But it is frustrating to keep working the same stations over and over again, when you know there are other stations waiting in line for a contact."

Haven't we all heard that plea from others too? .... VK5LP.

### On the higher bands.

These too, seem to have gone into the doldrums with the onset of the cold weather as no reports have come in of anything special being done. Mark VK5EME, says he and David VK5KK have been maintaining almost daily skeds on 2304 MHz with very good results.

The VK5VF beacon on 1296.450 continues to enter the VK5LP shack at a steady S9 whenever I listen to its two watts! That seems reasonable for the distance of 130 km and without the use of the masthead pre-amp.

### Closure.

By the time you read this we will be entering another equinox. I suggest you continue to be vigilant for possible F2 contacts, particularly if assisted by Es. I am not convinced the F2 period has gone completely, what was worked after the peak of previous cycles should be kept in mind. As you never know when an F2 contact is possible, and not necessarily from your area and particularly when you are working via Es, please leave 50.110 clear for those who may have such an opportunity.

Closing with two thoughts for the month:

1. The wonderful world of home appliances now makes it possible to cook inside with charcoal, and outdoors with gas, and,
2. Time neither subtracts or divides, but adds at such a pace it seems like multiplication.

73 from The Voice by the Lake.

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**Help protect our frequencies — become an intruder watcher today**

# Divisional Notes

## VK2 Notes

Tim Mills VK2ZTM

VK2WI. A reminder to listeners that the planned change to the morning broadcast time will occur on Sunday 25 October to the new time of 10am. There is no change to the Sunday evening transmissions with the tape at 7.15pm and the news at 7.30pm.

While 10 am is currently a clear slot there will be a time share with VK4 during daylight saving periods now that Queensland has chosen not to adopt daylight saving this year, from what we understand.

The Dural site houses the VK2RSY beacons as well as the VK2WI broadcast system. The beacons have been operational for about 20 years, first with six and two metre units, followed at intervals by 10 metres, 70 cm and finally 23 cm. At about the same time six and two-metre SSB transmissions were added to the broadcast format, when the transmissions originated at VK2AWI, Crows Nest. When the broadcast returned to Dural these transmissions were added late in 1978. To allow reception of callbacks and to share antennas, the beacons on 10, 6 and 2 go off in the broadcast period.

A series of requests has been received from those who rely on the beacons for experiments not to take them out of service. There is also a request to either move the frequency on two metres, at present 144.12 MHz, or take the transmission off air to allow experiments to proceed on 144.100 MHz on Sunday mornings. Divisional Council would like to hear from users about these requests before committing funds to system changes. Please direct comments in writing to the Secretary at the Parramatta office.

## Recent New Members

A warm welcome is extended to the following who recently joined the VK2 Division:

N D Harris	Assoc	North Parramatta
S R McInney	Assoc	Yagoona
C U M Moser	VK2XSM	Chatswood

## Future Events

The next Trash and Treasure will be held in the car park at Parramatta on Sunday afternoon 27 September. The next Divisional exam to be held at Parramatta will be on Sunday 8 November, with a closing date for applications on 22 October. If you took part in the recent RD Contest, don't forget to send in your log for VK2.

## VK2RCW Improved on 80 Metres

Some recent work on the transmitter and antenna system of the continuous automatic slow morse facility of VK2RCW should

have resulted in improved coverage on 3699 kHz. The transmissions originate from Sydney with the addition of a local output on 144.950 MHz. VK2RCW was established during the 1970s by the Hornsby and District ARC, and it welcomes reports on both day and night coverage on 80 metres. Send reports to the club address, PO Box 362, Hornsby NSW 2077, or to Barry VK2AAB on packet at VK2RW1.

The morse machine has a block of text in its computer which is sent in about five-minute blocks. An indent is then inserted and another five minutes is sent. After a group of four segments at one speed the sending rate is increased for a further four periods. A third speed increase is introduced before the sending rate reverts to the slowest speed.

This service complements the WIA slow morse sessions conducted nightly on 3550 kHz, first from VK2 at 2000 hours, which is followed by VK5. Morse training transmissions are regularly listed in a column in the pages of Amateur Radio.

## Strong Signals on 70 Cm

No doubt VK2 is not the only part of the country to find that "our" 70 cm band is not always empty except for "us amateurs". We are the Secondary Service, and the Primary Service are systems used for radiolocation. Every so often such a device appears to shatter the quiet spectrum space.

A few months ago a signal appeared in the Illawarra region in the portion round 441 MHz used for repeater and packet links. It has a chirp-like transmission across a wide portion of spectrum. It was traced to and appeared to be operated by a Department of Defence service for perhaps radio location. A frequency change to the links moved them to the lower 420 MHz portion. The device is still operational.

During July 1992 in Sydney the various 70 cm repeaters began to be keyed up by a wide bandwidth signal round the 433 MHz segment. It remained active for a few days and is thought to have again been a radio location system operating near Sydney's northern beaches. It disappeared before bearings were confirmed.

A new signal has also appeared round 441 and this, at the time these notes were written, has been traced to the South Head region.

Some years ago the amateurs in Perth, about the time a certain yacht race was conducted, discovered similar signals appeared on 427 MHz.

If any reader is aware of other transmissions in the 70 cm band which are of ap-

parent non-amateur origin it would assist in building up a profile of band usage. Most will be those of a radio location or defence department nature which are primary users. There could be the odd "pirate" using a hand-held or similar above 440 MHz.

The main thing, however, for amateurs is to make the maximum possible use of the band for all the modes. Beacons, repeaters, packet, moonbounce, SSB and ATV. We have a lot of band space, and are one of the few countries with such a wide "chunk" of spectrum. Use it and help retain it.

Your reports and comments would be most welcome to your Division or to FTAC.

## VK3 Notes

Barry Wilton VK3XV

The 1992-93 council held its 1st meeting on Thursday, July 23rd. Its primary task was to elect office bearers for the next 12 months.

Council re-elected Jim Linton VK3PC as President making it his 8th term in that office. His appointment and those of other office bearer positions remain unchanged from the previous council.

Barry Wilton VK3XV is Secretary, Bill Trigg VK3JTW Broadcast Officer, George Hunt VK3ZNE Disposals Officer, and Peter Mill VK3ZPP was re-appointed to VTAC. The Treasurer, Rob Hailey VK3XLZ was appointed for a 12 month term last December.

## ELECTRONIC DISPOSALS

### 27 THE MALL SOUTH CROYDON

#### Specials:

3 watt ceramic resistors 10c each  
40 amp 12 V relays single throw \$4  
5A Bi Metal cut outs 35c each  
CB/10m end fed mobile ant comes  
complete with coax and mount  
\$12.00

Mains caps 240 v \$1.00 each  
ECL — 1Cs 10.000 series \$3.50 per  
tube

2716 70c each or \$10 per tube  
9016 16k x \$12 per tube  
TL082 Low noise op amp \$1 each  
10 µF 40 v low leakage Electrolytics  
\$6 per 100

2200 µF 50 V axial 90c each plus  
lots components at reduced rates.

KITS (OR PARTS, BOARD, ETC.)  
AVAILABLE FOR DREW DIAMOND'S  
PROJECTS



The council meeting discussed a range of issues. These included finances, trading, office policies, federal affairs, the constitutional review, theory and Morse classes for 1993, repeater sites and technical data-base, and the Sherbrooke Shire's L61 planning amendment.

Council also decided to produce a new publicity brochure for 1993 aimed specifically at prospective radio amateurs thinking of joining the hobby and WIA Victoria.

### 5/8 Wave

*Roland Bruce VK5OU*

The more things alter.....! Jenny, VK5ANW, having decided to relinquish the Editorship of 5/8 Wave, found she had a volunteer in me, (I'm still not quite sure how it happened,) and it was agreed I should take over when I returned from a trip to the Northern Territory. So, first, Jenny, many thanks on behalf of the Division for the years you have devoted to writing this column. I remember the Council meeting when, almost apologetically, you told us that you had been asked to write a few words, and had taken it upon yourself to head them with the title 5/8 Wave. Those few words must be into the hundreds of thousands by now.

Secondly, whilst up North I was accosted at the Mindel Beach market by Spud, VK8ZWM, who brought me up to date on the SEANET Convention being organised by Darwin ARC in October.

It should be a great event. Have you wanted a business trip or a holiday at that time yet? The NT Tourist Bureau was extremely helpful in many ways whilst I was there; they should be able to answer any questions you may have.

The more things alter.....! I missed a couple of General meetings and Council meetings during being away. When I got back I found out that life goes on as normal despite one's absence. There were all the usual crises I had become used to in my term as President.

- A: John Highman, our new Secretary, had been transferred interstate. Thanks for the tidy files you handed over John, to ... guess who? We need a replacement, quickly.
- B: Mark Spooner, VK5AVQ, a man of many parts, especially ESC parts, is heading to VK0 once more. In particular we need a replacement Program Organiser.
- C: Lindsay Collins, VK5GZ, has resigned as the Division's Intruder Watch Co-ordinator. John Harris, VK5ZRH, has agreed to take on that job. Thank you John, and welcome to the team.
- D: At a Federal level, John Ingham, VK5KG, is resigning from the position of Video Tape Co-ordinator, and no doubt a replacement is needed urgently.

All these volunteers deserve our thanks. They have done sterling work, in most cases over many years. They will be sorely missed. So do we have any replacements? Don't be shy! On the other hand, it was good to hear Chuck, as Membership Secretary announce nine new members in the last two months.

Unfortunately I neglected to ask the names of those in June, but in July we welcomed VK5ZGC Gary Cook; Tony Yates; VK5KCT, ex-SP9RPT, Andrzej Tomczyk; VK5NYD, Nora Young and VK5ZWB, Peter Wilinski.

Diary: 22nd September — Members' Equipment Night. 8th December — Christmas social. Details to follow. 1993 — Buy and Sell Nights — January, May and August.

### VK6 Notes

*Harry Atkinson VK6WZ*

The Division is seeking the services of

both a meeting secretary and a broadcast officer. John Farnon and Nick Morgan have both found work pressures in their jobs have increased, hence their resignations. These vital positions must be filled — can you help?

Councillors are to look at a possible new venue for meetings; more next month. Also, the October issue may have some good news for ATV enthusiasts — a permanent, secure home for a Perth ATV repeater.

Surplus and duplicated gear goes to auction at the City of Melville main hall on 17 October, Almondbury Road, Ardross. More information by ringing the curator, Andrew Davey (090) 364 1558.

Upcoming events: Northern Corridor "Hamfest" 1/11/92; Special Event 80th anniversary of VIP coastal radio station 21-22/11/92. More details next month.

ar

## Spotlight On SWLing

*Robin L. Harwood VK7RH 52 Connaught Cres., West Launceston Tas 7250*

September has arrived and as the Seasonal alterations are being made, it is interesting to note that there is a marked deterioration in the higher frequencies above 17 MHz. Although there are good signals still present, levels have gone down making weaker stations harder to copy. The lower frequencies are picking up and some interesting catches are being reported. The equinox is perhaps the best time to listen around on the tropical bands, that is between 2 and 6 MHz. As Summer approaches, the amount of QRN will substantially increase to the point of making these frequencies totally unusable.

Radio Ukraine in Kiev is being easily heard here of late around 0400Z on 11980 and 12060 with their World Service in Ukrainian. Radio Moscow formerly had a number of senders in the Ukraine at Lvov and Simferopol, but these are now being used for their own external programming. They are also being rented out to other CIS nations such as the Russians plus the Baltic Nations. I believe that Radio Kiev does have an English program of about 30 minutes, basically for North American audiences. The times for these will be changing at the end of this month, when Europe goes off Summer Time.

Incidentally I have also noted Adventist World Radio-Europe on 15125 at 0430Z in English. A German language program follows at 0500Z. Although AWR-Europe does give an address in Forli, Italy at the end of the transmission, the signal is in fact coming from leased senders in the former Soviet Union at Moscow, Ekaterinburg

(formerly Sverdlovsk) and Samara. Some of the English programming has been produced in Australia at the Adventist Media Centre in Sydney. AWR-Europe also uses Arabic, Croatian, Serbian, Slovenian, Romanian, Polish, Italian and Swedish from the leased former Soviet senders between 0230 and 2000 UTC. AWR did also rent time over the Gloria site in Portugal to broadcast to Europe and the Mid-east, but this was abandoned. AWR-Europe have their own sender based in Forli, Italy but this is only rated at 10 kilowatts compared to the leased CIS senders of several hundred kilowatts.

There has been some informal discussion, I believe, for the member clubs of the South Pacific Association of Radio Clubs (SPARC) to join together to produce a monthly bulletin. This would save duplication of information and the effort of compiling a monthly bulletin would therefore become a co-operative effort and relieve the load on each member club to produce a monthly bulletin. However, each club would still retain its own identity.

Radio Zagreb in Croatia is being heard here at 0500Z on the non-standard channel of 13830 kHz. Signals are good. Broadcasting in Croatian, with an English news bulletin around 0605Z. It is also on 9830 at the same time but 21480 has been dropped. I believe that United Nations troops have their own programming over Radio Zagreb but I have not observed it yet.

Well, that is all for this month. Until next time, the very best of listening and 73 — Robin L. Harwood VK7RH.

ar

# Technical Correspondence

## A Morse Philosophy

I was a member of the VK5 slow morse panel for over three years, and used a Ten Tec twin paddle keyer, which is still in use after 13 years. The second half of my sessions commenced at 6 wpm, then the speed was gradually increased to 8 wpm whilst sending. I then read back by voice what had been sent. The final segment also commenced at 6 wpm, the gradual increasing speed finishing at 12 wpm. I felt my style of increasing speed gradually allowed the learners more time at copying morse, as they settled in at their own speed and kept on copying not realising I was gradually going faster. I felt that the start/stop idea at the various set speeds threw them off concentrating very quickly, and so gave it away.

After many exams I used to put on a learning live on air QSO at novice speed for one and a half hours, with VK5AWI calling CQ, my own call answered with QRZ de VK5NLC, I gave my name as Ebenezer and QTH as Timbuctoo, just to make any mind reading much harder. I explained on speech all that had been sent, and what the abbreviations meant.

Near exam time, I would say, "I am now going to send mixed groups," then sent a large group of the very hard amateur call signs composed of three, four, five and six symbols. If anyone was not able to copy them well, they were not good enough to take an exam.

It is one thing to learn "only" the letters and figures like a pet parrot, sit and pass the morse exams and be granted that licence without learning how to conduct a QSO live on air, using all the necessary abbreviations, plus being a bundle of nerves, many give in to the microphone instead of using the key and gaining proficiency with it and improving their speed ready for the full call.

I have tried for years without success to change the regulations which state anyone is allowed to operate ONLY provided a licensed operator is in attendance. If prospective novices with good CW operating efficiency (ex WW2 operators) were allowed to operate live on air, under supervision of an accredited operator, or at least a club station, they would soon learn how to conduct a QSO, also gradually overcome the nervous tension that always crops up.

The novice should use his or her CW a lot to get his speed up to 10 wpm, and then concentrate on learning the theory.

Many people said they could not find much CW on air as it was too fast. I suggested to them to scrounge an old 3-3/4 to 1-7/8 reel tape recorder, tune the CW note to a high pitch, and start recording at 3-3/4 speed. When played back at 1-7/8, it was at the normal CW note and copy at half speed, with a bonus of twice as much text.

When someone told me they had just bought a twin paddle keyer (they must be keen) I asked them to sit down and have a hard think about what band they should use. During WW2 I myself wrote and sent morse left-handed. On getting my novice licence in 1976, and being in all the world CW contests, I decided to use it with my right hand. At speeds of 25 wpm in contests etc, my right hand stayed at the paddle for instant use, my left hand did all the writing and returning. It also had to alter the sending speed at times. Sometimes both hands are working, as I pick out the file cards to match an amateur's callsign that

I am starting to work. Since June 1983 I have been running a home brew CW programmable caller, so with my VOV set at a speed of 7 wpm, I never use my hands for operation of RX/TX.

Referring now to Gilbert's article in June 1991 AR, I do vary my speed while calling CQ. Often a slow CW gets answered, so when I am signing over, I increase speed for a few moments at the end, the operator then returns with his faster morse. I work many slow operators and give them all the encouragement I can.

Even with CW filter and an audio filter, I don't recommend full break in, except on an empty band with strong signals. In contests at fast speeds, it is bad enough operating the twin paddle giving the correct RST and number and entering the time, without hearing up to five stations bashing your ears while you are sending. I still do pause at times and have a listen. Full break-in is very heavy wear on the relay contacts, mine in 10 years are due for another service. I also use BK for a break-in transmission when I have a request for some info.

Lindsay Collins VK5GZ  
12 Park Ave  
Rosslyn Park 5072  
ar

## Awards

John Kelleher VK3DP — Federal Awards Manager

From time to time, I will be featuring an inexpensive yet very attractive DX award to adorn the shack wall. Such an award is the "Nine Dragons Award".

To qualify, work one country in CQ zones 18.19 and 24 through 30 for a total of nine zones. The zone 24 contact must be with a VS6 (Hong Kong) station.

Contacts are valid after 1 January 1979. The fee is US\$3.00, and your application and certified log extracts (no QSL cards required to be sent) go to:

The Awards Manager  
HARTS  
GPO Box 541  
Hong Kong

While on the subject of awards, I would like to hear from some of the many Australian amateur clubs and organisations which still operate nets and issue certificates which would be of interest to overseas stations. My reason for asking is to include participating groups in the K1BV Awards Directory, which is produced annually, and is on world-wide distribution.

## Section V. Field Checking of QSL Cards

QSL cards for new DXCC awards may be checked by two DXCC field representatives. This program applies only to the first DXCC award for an individual or a station. Specifically excluded from this program are additional new DXCC awards and endorsements of existing awards. Also excluded are 5BDXCC, six-metre, two metre and Satellite DXCC.

1. Countries Eligible for Field Checking
  - (a) Eligible countries will be indicated in the ARRL DXCC Countries List, and are subject to change. Only cards from these eligible countries may be checked by DXCC field representatives. QSLs for other DXCC countries must be submitted directly to ARRL Headquarters.
  - (b) The ARRL Awards Committee determines which countries are eligible for Field Checking.
2. DXCC Field Representatives:
  - (a) DXCC field representatives must be ARRL members who have a DXCC

award endorsed for at least 300 countries.

- (b) To become a DXCC field representative, a person must be nominated by a DX club. (A DX club is an ARRL affiliated club with at least 25 members who are DXCC members and which has, as its primary interest, DX. If there are any questions regarding the validity of a DX club, the issue shall be determined by the Division Director where the DX club is located). A person does not have to be a member to be nominated by a DX club.
  - (c) DXCC field representatives are approved by the Director of the ARRL Division in which they reside, and appointed by the President of the ARRL.
  - (d) DXCC field representative appointments must be renewed annually by the DX club that nominated them. Renewal is requested on the club's Annual Report form, signed by a club official and is subjected to approval by the President of the ARRL.
3. Card Checking Process
- (a) Only cards from the list of eligible countries can be checked by DXCC field representatives. An application shall contain a minimum of 100 QSL confirmations from the list, and shall not contain any QSLs from countries that are not on the list of eligible countries. The application may contain the maximum number of countries that appear on the list of eligible countries. That is, if there are 245 countries on the list, the initial application for a field-checked DXCC award could contain 245 countries.
  - (b) It is the applicant's responsibility to get cards to and from the DXCC field representatives.
  - (c) Field representatives may, at their own discretion, handle members' cards by mail.
  - (d) The ARRL is not responsible for cards handled by DXCC field representatives and will not honour any claims.
  - (e) The QSL cards must be checked by two DXCC field representatives.
  - (f) The applicant and both DXCC field representatives must sign the application form. (See Section I, No 11 regarding altered, forged or otherwise invalid confirmations).
  - (g) The applicant shall provide a stamped A4 envelope (business size) addressed to ARRL HQ to the DXCC field Representatives. The applicant shall also provide the application fee (cheque or money order payable to ARRL — no cash) for the initial DXCC award.
  - (h) The DXCC field representatives will forward completed applications and appropriate fee(s) to ARRL HQ.
  - (i) Applicants and field representatives are

encouraged to submit application data on an IBM-compatible diskette in the format approved by the DXCC desk. (Details are available from the DXCC desk at ARRL HQ). Applications on diskette must be accompanied by a paper copy of the application that has been signed by the applicant and the two DXCC field representatives.

4. ARRL HQ Involvement in the Card-Checking Process
  - (a) ARRL HQ staff will receive field-checked applications, enter application data into DXCC records and issue DXCC credits and awards as appropriate.
  - (b) ARRL HQ staff will perform random audits of applications. Applicants or members may be requested to forward cards to HQ for checking before or after credit is issued.
  - (c) The applicant and both DXCC field representatives will be advised of any errors or discrepancies encountered by ARRL staff.
  - (d) ARRL HQ staff provide instructions

and guidelines to DXCC field representatives.

5. Applicants and DXCC members may send cards to ARRL Headquarters at any time for review or recheck if the individual feels that an incorrect determination has been made.

Subsequent to this information being published, I enquired of ARRL as to my qualifications as a field representative.

Their reply was as follows: "Thanks for your letter of 17 June regarding DXCC field checking. This program has been in operation for less than a year. We decided to proceed slowly in all aspects of the program. As you can see in the rules, field checking is now limited to first-ever DXCC awards. Section V2 (b) and (c) while not clearly stating so, does in practice limit field checking to the USA. We will be reviewing the rules as we gain more experience with the program".

Sincerely and with 73  
Charles L. Hutchinson K8CH  
Membership Services Manager  
ar

## ALARA

Robyn Gladwin VK3ENX Box 438 Chelsea 3196

The ALARA birthday activities held on the last weekend in July were very successful. Birthday luncheons gave members in the various states an opportunity to meet with each other. I hope that OMs were able to make contacts towards the ALARA Award. Many thanks to Glen, ZL2KZ, Colin, VK3LO, and Laurie, VK3AW, for joining the informal birthday net. It was good to hear Mavis, VK3KS, on 80 metres phone after a long absence. The highlight of the birthday celebrations was the presentation of plaques for Outstanding Service to ALARA to Jenny Warrington, VK5ANW, Bron Brown, VK3DYE, and Poppy Bradshaw, VK6YF.

Congratulations go also to Dorothy Bishop, VK2DDDB, for her first ALARA Newsletter as Editor. I feel her delightful cartoons deserve a wider audience.

With regard to the plea for increased membership of the W.I.A. from the new President, I would like to share with readers some recent ALARA statistics. There is a total financial membership of 226. There are 115 Australian members of whom 67 or 58% are WIA members.

DX members play an important role in ALARA. YL magazines from overseas are available from the ALARA Librarian, Kim Wilson, VK3CYL, 1

Maurice Circuit, Wantirna South, Victoria, 3152. The JL YLs are planning an Asian YL Meeting in Osaka from 3rd to 5th April, 1993. Further information may be obtained from Kyoko Miyoshi, 4-16 Kokawa, Chuou-ku, Osaka 540, Japan. The YLRL YL Anniversary Party Contest will be held for CW on Wednesday, 14th October, 1400 Z to Thursday, 15th October, 1700 Z. The SSB contest will take place from Wednesday, 28th October, 1400 Z to Thursday, 29th October, 1700 Z. Mail logs to YLRL Vice President Carla Watson, WO6X, 473 Palo Verde Drive, Sunnyvale, CA94086.

"33"

ar



Don't understand how  
anyone enjoys these  
dogpiles!

# Over to you — Members Opinions

*All letters from members will be considered for publication but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.*

## Convert to Metric

I have read with some interest the comments of Mr. Reg Wheller VK4ARW in June AR, regarding the apparent lack of interest by the author to convert to metric in the antenna article for the Z-Match.

Mr. Wheller must have read just my article as he failed to mention the other imperial article in the very same issue of AR. Not very fair Mr. Wheller !!  
Not only that but he failed to notice all the previous ones, and they still keep coming, but I am not complaining.

To be fair to his students (future radio operators), I feel that they should be at least aware of imperial (a few conversion tables etc). That would save a lot of embarrassment for Mr. Wheller's students, when they read the ARRL and RSGB reference publications. Just may be these future amateurs might work some DX as well.

I think an open mind is called for.

**Adrian Fell VK2DZF**  
PO Box 344  
Baulkham Hills NSW 2153

## WIA Exams

Having just passed my exams and now licensed (unrestricted), I would like to commend the WIA and all those involved in the exam service as being excellent.

I would like to see the introduction of higher theory exams where extra class licences are available. However, I do not like to hear (inevitable ?) rumblings about a no code licence, and would put more interest in home brew projects together with more construction type questions in the theory exams.

I agree with Roger Harrison (VK2ZTB — July) that a more appropriate name emphasising "Amateur" would be better for the WIA. Also concurring with Thomas Knopp (VK3GKJ) in that full call privileges be extended by any amount, if only to encourage.

As Dale Carnegie says in his book *How to Win Friends (Amateur) and Influence (Novice) People* — "It's not the size of the step that's important, it is the DIRECTION in which it is taken".

Also a good idea is to have WIA members highlighted in the call book as mentioned by Gareth Davey (VK3ANF-June)

**Paul Clutter VK2SPC**  
52 Keats Avenue  
Bateau Bay NSW 2261

## Name Change !!

I am writing in support of the proposed change of name for the Institute as suggested by Roger Harrison in his letter published in AR for July 1992.

I see in the proposed new name "Amateur Radio Institute of Australia" the potential for a publicity campaign that spearheads some of the changes of attitude needed amongst the majority of Australian radio amateurs. Along with the breath of fresh air (dare I suggest a gust!) that a change of name would bring, all aspects of our amazingly diverse hobby could be more publicly acknowledged and promoted both within and without the Australian amateur population.

In this way the presently widespread attitudes of non-communication, non-participation, non-involvement and discontent for the future of the hobby may be able to be overcome with new energy, new blood and a new direction. I think that Roger has found the lever of the switch which, when thrown, will energise amateur radio in the 1990s and beyond in Australia.

**Doug Friend VK4OE**  
35 Cronin Street  
Annerley QLD 4103

## Name Change Again !!

I congratulate Roger Harrison for his forward thinking. Societies such as ours need regular self-analysis. We need to take stock of where we are, and where we are heading. Roger has brought to notice a vital element in any forward planning, that of presenting a modern, vital image.

In many respects amateur radio is at the cutting edge of technology, however rearranging the deck chairs on the Titanic is not going to have much influence on our future destiny.

Name changing is cosmetic, we need substance, not shadow. Real modernisation is called for, I suggest our proudest possession is being the oldest amateur radio society. Let us maintain our name and traditional background, and put all our effort and "thinking power" into grafting a modern image, based on real performance, onto our traditional background.

The secret of a strong society is a management committee properly informed about the requirements of a majority of members. "They" cannot bring the WIA into the 21st century, we need real member input. Surely for a hobby based on

communication, it is not beyond our wit to devise better feed-back from members to officials.

Radio operators will join a society which delivers the services the members want, at a price they are prepared to pay. I suggest the phrase needs to be emblazoned on the heart of all our policy makers.

**H F Wise VK2HW**  
4 Turner Street  
Balmain NSW 2041

## Thanks

I would like to use the "Over to You" column to thank an unknown benefactor. Back in June of this year, I advertised for a coil box for an old HRO receiver. Some week or so later I found by my back door not one, but a complete set of HRO coil boxes.

My delight at this find was a little clouded because the donor left no indication of who he was, and I was thus not able to thank him in person. Asking around has not led to a name, so I can only hope the donor will read this, and accept my sincere thanks for what I can only assume was intended to be an anonymous gift.

**Harold L Hepburn VK3AFQ**  
4 Elizabeth Street  
East Brighton Vic 3187

## Mode Clash

A year or two ago the Wireless Institute asked the membership what it thought about giving more space to the so-called narrow band modes. It was suggested that CW operators might consider giving up the 10 kHz between 14070 and 14080 to allow the growing number of keyboard operators to move down and ease congestion.

I, and I'm sure many other operators of CW, wrote to say that, if it was needed, why not? After all, we are all amateurs together and a little give and take is good for the hobby. So the AMTOR people moved into the 10 kHz and everyone was happy.

Alas, there are always one or two who spoil it for everyone. AMTOR stations are beginning to creep below 14070 and causing interference to CW stations who operate regularly on the frequencies just below. For example, the Royal Signals Amateur Radio Society, which uses 14065, is experiencing problems, some AMTOR appearing on, and even below, that frequency. In the USA, the certificate hunters' club also operates around there.

What is worrying is that some CW operators are trying to jam AMTOR stations with strings of dots and dashes. We can do without this. It's understandable, but profitless, it only increases the QRM and leads to acrimony. I would appeal to the few who transgress (and there are only a few, so far) to move back to their respec-

tive frequencies before it all starts getting out of hand.

I know it's just a gentleman's agreement, but we are all gentlemen or ladies — aren't we?

**Jeff Jeffrey VK6AS**  
**129 Coode St**  
**SOUTH PERTH 6151**

*(We have received several letters on this topic, from both members and non-members, some of whom preferred anonymity to avoid repercussions. Acrimony seems to be already with us! Must we (a few of us) behave like mannerless slob? — Ed).*

## And WICEN Again

Acts of Parliament make for rather dull reading, so I can't blame Mr Ellis ("AR" August '92) for not having taken the time to check his facts. If he cares to read section 53 of the State Emergency and Rescue Management Act 1989 (No 165), he'll realise it's not WICEN that restricts his "right" to engage in emergency communications.

Also, far from being "entitled" to assist, paragraphs 18-24 of DoTC brochure RIB72 REQUIRE the amateur station to notify the appropriate authority, then to STAY OUT OF THE WAY unless explicitly requested to transmit.

My "thongs and stubbies" hyperbole, which I used to illustrate the value of the uniform of an accredited organisation, was evidently lost on Mr Ellis. I suggest he don casual attire, attempt to join a police operation, and see how far he gets.

While Stan personally might not benefit from WICEN training, there are several hundred amateurs in NSW who HAVE done so, in controlled exercises with other organisations, and while combating real emergencies, WICEN is about providing a supplementary emergency communications service to these organisations. We do NOT aim to turn the police into radio amateurs, or to become firefighters ourselves.

If Stan doesn't want to take an active role in putting amateur radio to use for the community good, none of us in WICEN will try to force him. But he should at least have sense enough to sit quietly in the corner while the rest of us get on with the job.

"It's better to light a candle than to curse the darkness."

**Richard P Murnane VK2SKY**  
**Manly-Warringah Local Co-ordinator,**  
**WICEN (NSW) Inc**  
**7/15 Grafton Cr**  
**DEE WHY 2099**

## Publicity for Amateur Radio

By recently going through the process of becoming involved in amateur radio, I learned that information on existence of and contact details of radio clubs was not

readily available to prospective amateurs not already involved in the hobby. Being aware of the marketing aspects of maximising public exposure and recruiting new amateurs, I decided to check one major vehicle for public listings: Yellow Pages club listings. Listings can be verified (in Sydney) by calling the Yellow Pages publishing company and asking for "subscriber maintenance", and giving the club's telephone number. There must be an equivalent procedure for other states, and also for the Melbourne BIG in Victoria.

I discovered the following: (1) There is no category "Clubs — Amateur Radio"; (2) my own club had no listing at all; (3) the WIA had a listing buried at the end of a very long category called "Organisations — Cultural and Educational". None of this is helping to get exposure for amateur radio.

Every amateur radio club which has a telephone should have a Yellow

Pages/Melbourne BIG listing, because every non-private telephone subscriber has the right to such a listing free of charge.

Over the phone I managed to organise a listing for my local club for the next edition, but as there was no category for amateur radio clubs, and no time to organise one by the closing date, the listing had to go under "Clubs — Social and General", which is less than ideal.

I suggest that both the WIA offices and radio clubs which have telephones should lobby the Yellow Pages publishers (it requires only a letter) to create a listing "Clubs — Amateur Radio" and to get themselves listed in it. This would come at the very beginning of the clubs listing with corresponding excellent exposure.

**Brad McMaster VK2KQH**  
**GPO Box 2094**  
**SYDNEY 2001**

ar

## Pounding Brass

**Gilbert Griffiths VK3CQ 7 Church Street Bright Vic 3741**

Real on-air operating is actually EASIER than the exams. I will admit that the first few QSO's are usually difficult and everyone gets butterflies at first, but there is not the fear of failing hanging over our heads. The rules are available to you at any time, even while you are on air, and a little practice will soon get rid of the butterflies. You can go on air and use plain English if you like, but it will waste a lot of time. Some amateurs may not work you because of this, as their operating time may be restricted and they will want to make the best of it by using abbreviations, and even full QSK (break-in) etc.

Most amateurs use abbreviations, so you can copy down the ones you hear and make a list that you can pin up in front of you while operating. You can even write down some of the things you want to send on air. It is easier at first to send from written copy.

Here is the recommended form of CQ call, it is called the 3 by 3 call — CQ CQ CQ DE VK3CQ VK3CQ VK3CQ AR K.

Many operators have their own preferences, some will call CQ ten or even twenty times, then their call a few times and may even repeat that before sending K. This is OK if they are using full break in (QSK) so that you can interrupt them at any time, but unfortunately most are not using break in and you have to wait. If you are in a hur-

ry, you can shorten the call to something like CQ DE VK3CQ K, especially if you think someone is listening on the frequency.

If you hear calls like CQ RD, CQ TEST, CQ N, CQ FD etc., these are people who are competing in contests. They will only send you a RST report followed by some more digits which may be a QSO number or some other contest number. They will expect you to do the same. Have a good listen beforehand to find out what is going on, they will usually slow for you.

OK, now that we have sent our CQ call, here is what a reply should look like — VK3CQ DE VK3CDU VK3CDU VK3CDU KN.

Your own call is sent once only, you are expected to know it well enough. His call is a new on for you, so it is first sent three times. The prosign KN means that only the station called should answer.

AR means "end of message". At the end of the contact you will hear something like — ..... 73 ES CUL AR VK3CQ DE VK3CDU SK E E.

AR (end of message) is usually put before the call signs, and SK is the abbreviation for "end of work". E E can be likened to a wave (as in waving ta ta's) and is answered by a single dit. Another ending you can send in place of SK is the prosign CL,

Abbreviation	Meaning	Remarks	Abbreviation	Meaning	Remarks
ABT	About		OM	Old Man	Complimentary term
AGN	Again		OP	Operator	
ANT	Antenna		PSE	Please	
BCNU	Be Seeing You		PSD	Pleased	
BFR	Before		PWR	Power	
BK	Break	Quick break in QSO	R	Received All	Indicates you listened & copied. eg. Rig IC751A, Ant Dipole etc.
CPI	Copy		RIG	Equipment	
CU	See You	ie CU AGN etc.	RPT	Please Repeat	
CUL	See You Later		SIG(S)	Signal (S) (Strength)	
DWN	Down		SRI	Sorry	
ES	And		TNX or TKS	Thanks	
FB	Fine Business	Expression of approval	TU	Thank You	
FER	For		UR/U	You Are/You	
GA	Go Ahead		VY	Very	
GB	Good Bye		WKD	Worked	
GE	Good Evening		WK	Work	
GM	Good Morning		WL	Will	
GN	Good Night		WUD	Would	
GND	Ground		WX	Weather	
GUD	Good		TX	Transmitter	
HI	Laugh	Used to indicate humour	YL	Young Lady	
HR	Here		XYL	Wife	
HW	How		73	Best Wishes	72 is used now for QRP T is sent instead of 0.
MY OM	Husband		ITT/5T	100/50 Etc	
NR	Near				
NW	Now				

this stands for "Closing Down". It tells the listeners that you are switching off so that if they call you they will not be heard. This can be helpful on a net as the other operators will know you are no longer listening. (you can eavesdrop).

Mal, VK6NV wrote to me recently saying that many new operators he has met are reluctant to try for DX because so many DX station operators use abbreviations. He sent me quite a list, to which I will add a couple of my own so that you can copy them and hang them on the wall where you can refer to them while on air.

AR means "end of message". At the end

### In Summary:

Listen.

3 by 3 calls or shorter.

Call CQ slightly slower than you can copy.

Use Q codes and abbreviations (learning will come with use).

Identify every 10 minutes, at the start and end of every over is not necessary.

Keep overs short.

Wait a few seconds between overs. **ar**

**Prevent pirates  
— make sure  
you sell your  
transmitter to a  
licensed  
amateur.**

**For technical reasons we are unable to bring  
you Intruder Watch this month. We apologise to  
all concerned for this unavoidable omission.  
The Editors.**

## Morseword No 66

Solution Page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

### Across:

- How many
- Blind Mice ?
- Look hard at
- Harvest
- Box
- Bicycle
- Picture
- Pea-shell
- At rest
- Swamp
- Eased off

### Down

- Wild feline
- Experience
- Platform
- Part of a camera
- Long walk
- Crow
- Noise of derision
- Plate used in Mass
- Within
- Bedding

© Audrey Ryan 1992

# Silent Keys

*Due to increasing space demands obituaries should be no longer than 200 words.*

The WIA regrets to announce the recent passing of:

J R (John)	TAPPER	VK2AQ
F (Frank)	KRUGER	VK3AI
B (Boris)	SHESTOKOFF	VK3NCC
H T (Tom)	MULDER	VK6MK
P T G (George)	SHUTTLE	VK6OQ
B (Brian)	PEMBERTON	VK6VW

## Tom Mulder VK6MK

Tom passed away on 22nd July 1992 after ten hospital treatment for surgery from which he appeared to recover but this was followed by a serious stroke some few days later last November. He was 81 years of age.

Tom was licensed as VK6MK about 1948 when he joined the WIA having then recently been retired as a Staff Signals Officer with the British 8th Army in Africa and Europe where he saw service in World War II. I had the pleasure of knowing him from that time and we were involved keenly in DXCC Chasing which indeed became an "addiction" to us both. His greatest wish was that he had all "listed" Countries Confirmed which was eventually fulfilled with ZA being confirmed a year ago.

In later years from Albany he was very active on 14 MHz with his many "W" friends from his Collins "string", always kept in show-room condition, likewise his second interest — Jaguar cars driven since I met him. Fishing in local waters and in the North West were other interests he held whenever opportunity offered.

Tom never married but is survived by his niece and nephew and their families. He and I were close friends and competitors in DX working and I am sure our urging one another in this field kept it going.

He will be sadly missed by the World DX fraternity and many other of his friends in Radio. 73 Tom.

Jim Rumble VK6RU

## Boris Shestokoff VK3NCC

Boris passed away peacefully in his sleep on 24th July 1992 after a very long and hard illness.

Boris was a very good friend of mine and thanks to him and through his guidance I got my full call licence. He also helped quite a few others with their licences as well.

Boris was a member of Moorabbin and District Radio Club and very well known on their Tuesday morning groups.

He attended regularly on the 21.158 MHz net and made many friends on Japanese Language group. He also conducted his Spanish Language group on 21.161 MHz for quite some time until illness took the better of him.

He will be greatly missed by his children Mike and Natasha and his wife Tanja as well as other relatives and friends.

Thomas Knopp VK3GTX

## John Robert Tapper

VK2AQ/VK6OA

(Originally VK6RJ)

John passed away at Hollywood Hospital in WA on February 29th 1992 at age 81 from an illness first diagnosed when John was in his twenties.

He first transmitted in 1929 with the call-sign VK6RJ. His professional career began in the 30's as a technician with WA's first commercial broadcaster 6ML, where he was closely involved with building the transmitter. John served in DCA, as OIC of various aerodromes in WA, in the PMG's department and was appointed as District Radio Inspector at Wagga NSW from whence he retired about 15 years ago.

Since retirement until very recently he maintained two homes, one in Wagga and the other in WA. He frequently crossed the Nullarbor Plain to live alternately in each home, seeking to enjoy his home state where his roots and family were, and Wagga where he had some warmly regarded friendships.

Failing health caused him to settle finally in WA. Just a few months before he died he sold his home in Wagga, and kind friends packed up and freighted his possessions to John in WA.

John talked fondly and often about the Wagga Radio Club and his friends in the Eastern States.

Barrie Field VK6BR.

## Andrew Keith Ballantyne VK3AKB

Keith Ballantyne of Upper Beaconsfield died on 13th July 1992 aged 88.

Keith's interest in radio started at Scotch College and continued while he studied architecture.

When Keith's father and sister died, his mother took her three boys around the world.

In Evanston, Illinois, U.S.A., he met Bill Conklin, U9DBF, who arranged for Keith to address meetings of radio amateurs on the state of the art in Australia.

Later, Keith went into partnership with a school friend, Godfrey Barthold and traded as The Radio Equipment & Service Co. (later Radesco Pty. Ltd.) in Malvern.

They broadcast on Sundays on wavelengths between approximately 220 metres and 100 metres using Godfrey's amateur callsign 3GL (later 3BT). Keith had an experimental wireless licence.

In 1927 Keith married Miss Elizabeth (Bessie) Coutie and moved to Frankston.

After World War 2 Keith obtained the callsign VK3AKB (circa 1947) and operated from QTHs at Brighton, Berwick and Upper Beaconsfield maintaining regular contacts with Bill Conklin (K6KA) and numerous other friends.

He was keenly interested in the WIA and was one of the first members of the Moorabbin & District Radio Club.

Keith was a member of the Radio Amateurs Old Timer's Club.

He leaves a wife, 3 daughters, 1 son, 15 grandchildren and 13 great grandchildren.

Keith will be sadly missed.

Dudley Cutler VK3ZDC

ar

**Repeaters —  
additions,  
deletions,  
alterations.  
Have  
you advised  
the WIA of  
changes  
needed  
to the  
repeater list?**

# HAMADS

## TRADE ADS

● **BAYCOM MODEM AND PROGRAM.** The German Baycom modem and version 1.5 of this packet program is now available. The modem is built into a D9 plug and connects to the RS232 port of an IBM compatible PC. This very compact modem does not need an external power supply. The modem is available with version 1.5 and printed manual for \$195 including postage from Australian Amateur Radio Association, 59 Westbrook Avenue, Wairoonga NSW 2076.

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boany Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne.

● **WEATHER FAX programs for IBM XT/ATs** \*\*\* "RADFAX2" \$35-00, is a high resolution shortwave weatherfax, morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. \*\*\* "SATFAX" \$45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. \*\*\* "MAX-ISAT" \$75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3-00 postage. ONLY from M Delahunty, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

## FOR SALE NSW

● **WW2 equipment:** AT5 transmitter complete except ATU, \$50; receiver R1155B, RDF removed, mains p/supply & o/p stage installed, \$50; US Sigs receivers 453B (Q5er) 200-550 kHz, 454B 3-6 MHz, 455B 6-9 MHz, with rack FT220A, \$150 the lot; receiver BC348, all components but stripped for rebuild, \$25. Also transformer pri 170-260 V 10 V taps, sec 100 V 15 A, steel case with V/meter, \$200 ONO. Keith VK2AXN, (02) 489 0304 QTHR.

● **COMPUTERS — PACKET — HF — VHF — UHF — 27MHz, COMMODORE SX-64** complete with built-in colour monitor disk drive plus Epyx Fast-Load Cartridge, lots of software, games, etc and Joystick \$150; COMMODORE 64 PLUS COMMODORE 1541 Disk Drive (Device 8/9 switchable), PLUS Cassette tape drive, 5 inch B&W monitor, Epyx Fast Load cartridge, lots of software, games, etc and Joystick \$100; COMMODORE 1541 Disk Drive (Device 8/9 switchable) \$50; HOME BREW Exhaust fan for 1541 Disk Drive \$10; COMMODORE Super Fast Parallel Disk Drive SFD101

for Commodore 64 — never used — \$50; COMPUTER CLASSICS 300 Modem to suit C-64 — \$50; APRA Packet Modem suit C-64 \$30; COMMODORE 64 Joysticks — NEW! \$5; COMMODORE 16 computer + software, games etc \$20; KENWOOD TR7400A 2m Mobile & mounting bracket S/N 560841 \$200; YAESU FT209RH 2m H/Held S/N 180659 with FNB3 \$150; ALINCO ELH-230g 2m 12v Linear suit above 5w/30w S/N 92101098 \$100; YAESU FT709R 70cm H/Held S/N 86140052 with FNB4 \$200; YAESU YH-2 Headset mike for either H/Helds above \$20; YAESU MH-12 Speaker/mike for either H/Helds above \$35; YAESU NC-15 Fast charger for either H/Helds above \$65; YAESU FT 707 HF Transceiver S/N OI060310 PLUS FV-707MD External Digital FVO QJ040248 PLUS YM-35 Scanning Mike PLUS YM-34 Desk Mike — the lot \$700; PACE 27MHz H/Held w/crystals 3w x 3 channel \$50; PRESIDENT 27MHz Marine H/Held w/crystals 5w x 6 channel \$75; Neil Cornish VK2KCN QTHR 018 243 880 — (A/Hrs) (02) 894 5678.

● **YAESU FTD560 550 w input \$320; LINEAR AMP, home brew part wired 700-0-700 v 1.5 Kw input \$90; YAESU mobile whips, base with 2m half wave and 80,40,20,15,10 MHz \$120; INDICATOR UNIT CRT type \$30; VZ300 DSE computer \$50; TANDY TR580 computer \$25; STC191 radio phones \$10; CHIRNSIDE duo band beam 10 & 15 Mx \$90; Dave VK2OC QTHR (069) 485 267 evenings.**

## FOR SALE VIC

● **KENWOOD TM211A 25 w 2mx FM, EC \$275; YAESU FT747GX 100 w HF, EC, \$950; KENWOOD TS140S, GC, \$950; KENWOOD AT180 ATU GC, \$175; DICK SMITH 20 A PSU, \$150; Ron VK3OM QTHR Ph (059) 44 3019**

● **ALINCO DR590 dual band 2m/70cm txcvr 5/10/45 w, service/operational manuals, DIAMOND X-200A dualband vertical, DIAMOND diplexer UHF connectors, EC, \$1075-00, WILL NOT separate. VK3EPD (059) 83 1771.**

● **ICOM IC751 HF TXCVR in absolutely mint condition. Includes SM8 desk mike, service and workshop manuals. Can be inspected "on air". \$1500-00, HF LINEAR 1500 w key down. Commercial grade unit will load at legal limit. 100% duty cycle power supply. Brand new spare set Eimac 3-500Z final tubes. Can be inspected in operation. \$1500. VK3XV (059) 987 851 after 6 pm.**

● **COLLINS KWM2A HF txcvr and PSU, A1 cond, incl instr book, mic, spare tubes \$1000; DRAKE TR4C, RV4C, PSU, desk mic, all as new, \$750; Rob VK3JE (060) 37 1262 or (03) 584 5737.**

● **HAND HELD ICOM IC-2GAT with Nicad rechargeable batteries and step down transformer 1 or 7 watts, two antennae, 48 cm and**

122 cm. In leather case as new condition, \$395. Used less than a few weekends. rare opportunity for a keen two metre mobile person. Roth VK3BG (03) 725 3550.

● **YAESU FT 707 100 watt transceiver c/w microphone, leads, mobile bracket and workshop service manual. S/n IC160610 VGC \$625. VK3CCE Reg (03)509 1720.**

● **YAESU FT207R 2mx h/held txcvr, rubber whip antenna, spkr/mic, PLL 4 memory, needs on/off pot plus NiCad battery pack. With manual and Cct diag. \$300; AWA CARPHONE JUNIOR, VHF (High Band) FM Txcvr, 6 channel Xtal controlled. Transmitter OK. Receiver needs attention. \$25-00. VK3AJO Vincent QTHR (03) 872 3503.**

● **YAESU FT ONE general coverage Txcvr, 2 mics, full set new extension boards, filters, built in PSU, good condition \$1350, Tel (051) 992 811**

● **HIDAKA trapped vertical aerial VS80KR, approx 28 ft high, Andrew VK3BJW (03) 678 8593.**

## FOR SALE QLD

● **FT-101B Plus spare new finals CW filter, FTV-650B six meter xverter, FV-101B VFO, all cables and manuals, perfect condition \$500 the lot. VK4IT (07) 266 5922.**

● **KENWOOD TS940S HF txcvr, mic, VGC, \$2450, Brian VK4BOW (077) 862 367 (Bus), (077) 862 108 (A.Hrs).**

## FREE QLD

● **TWO SIEMENS 100 Teletypewriters with quantity spare parts, incl motors. Noel VK4NB (07) 892 3458**

## FOR SALE SA

● **IC751, 725 HF/6M, R71A & EX309, KENWOOD TS2020, RZ-1, SONY ICF 2020 (sim. 2001D), AESA PK232 with 8086 based HP lap-top/terminal, 1989 APRIL Handbook, 1989 Call-book, PANASONIC 1081 printer and ribbons, NEC P52/5300 colour kit, YAESU G5400B Az/EI rotor, Image scanner, PC Fax card, AM-STRAD PPC640, 30 AMP PSU, MS Prog Lib CD ROM, some MAC and PC software, (SASE for list) VK5CQ QTHR (08) 289 2146**

## FOR SALE WA

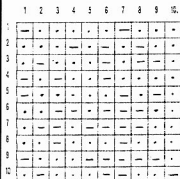
● **DECEASED ESTATE — TOWER self supporting 63 ft. with tilt-over antenna rotating pole, HAM-M ROTATOR and remote controller,**





## Solution to Morseword No 66

Page 51



### Solution for Morseword No 66

Across: 1 tiger; 2 stare; 3 reap; 4 case; 5 bike; 6 image; 7 pod; 8 idle; 9 bog; 10 lax.

Down: 1 tiger; 2 felt; 3 stage; 4 lens; 5 hike; 6 jay; 7 boo; 8 paten; 9 inner; 10 sheet.

## HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary  
Wireless Institute of Australia  
PO Box 300  
Caulfield South, Vic 3162

I wish to obtain further information  
about the WIA.

Mr, Mrs, Miss, Ms: .....

Call Sign (if applicable): .....

Address: .....

State and Postcode: .....

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## VK QSL Bureaux

The official list of VK QSL Bureaux. All are Inwards  
and Outwards unless otherwise stated.

VK1	GPO Box 600 Canberra ACT 2601
VK2	PO Box 73 Teralba NSW 2284
VK3	40G Victory Blvd, Ashburton Vic 3147
VK4	GPO Box 638 Brisbane Qld 4001
VK5	PO Box 10092 Gouger St Adelaide SA 5000
VK6	GPO Box F319 Perth WA 6001
VK7	GPO Box 371D Hobart Tas 7001
VK8	C/o H G Anderson VK8HA Box 619 Humpty Doo NT 0836
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- An external DC jack and inbuilt battery charge circuit allows direct 12V DC operation, and 5W output.
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